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February 1961  
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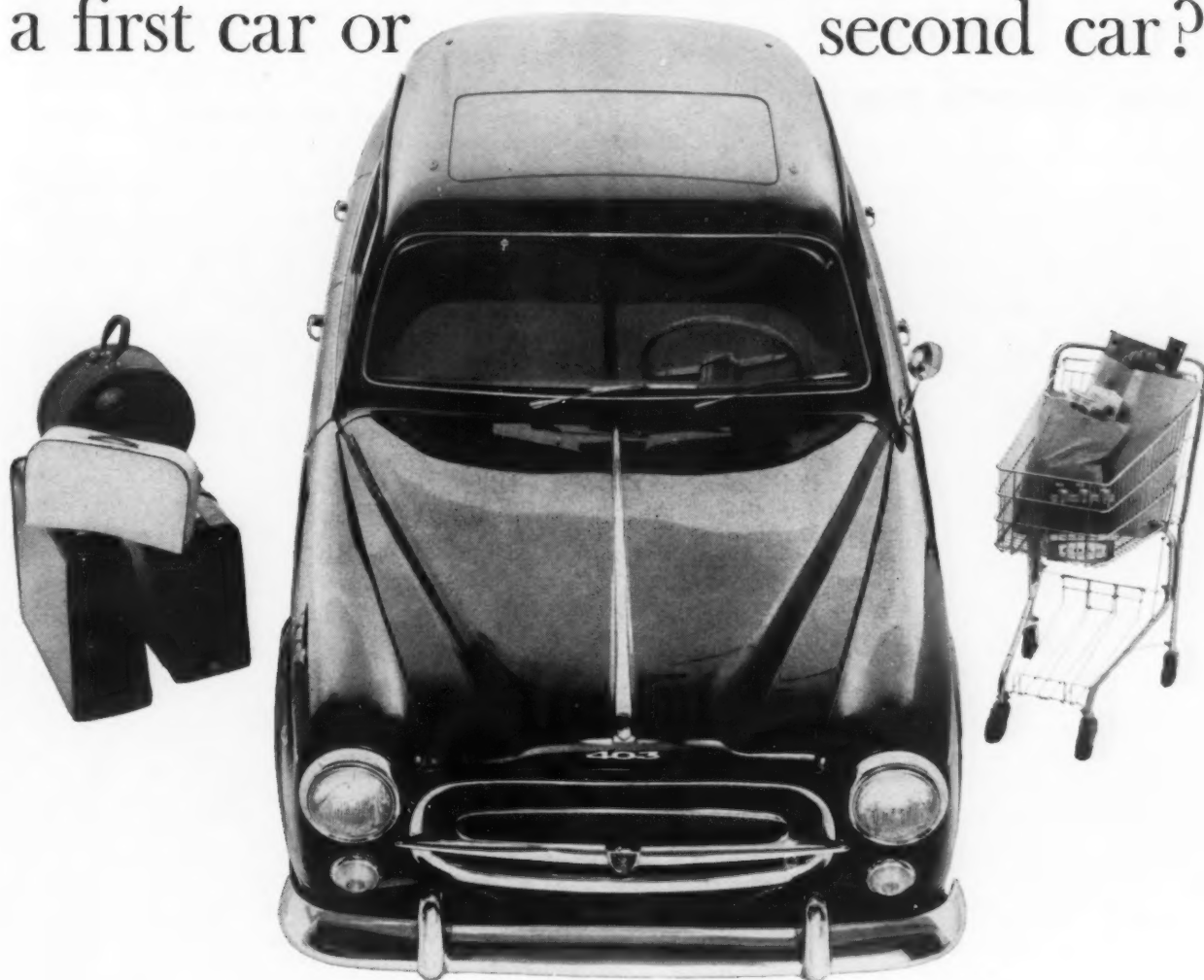
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## OBSERVATION AND OPINION

**BUM STEER** — Quite a few new cars have passed through the editorial hands this month, bringing up some thoughts about steering in the process. Two of the most interesting were the Volvo P1800, on page 58 in this issue, and the Pontiac Tempest, which we're now giving an extensive workout in preparation for a Road Research Report next month. It's still too early to deliver a final verdict on either car but one surprising conclusion could be drawn at once: the Tempest feels highly like an European sedan, and the Volvo is like nothing more than an American-built sports car.

The Tempest, though, immediately disappointed by its very slow steering, which must be discussed completely apart from its basic handling qualities. We first tried an automatic-box car (52/47 front/rear weight distribution, dry) fitted with power steering, which has just the same 23.6 to one overall ratio (6+ turns lock to lock) that the standard steering offers. It is discouragingly slow. It's delightfully easy, but so slow that the Tempest's lively chassis simply can't be used. No less than eleven years ago, in the 1950 model year, power steering was first used on an American car to overcome the heavy forward burden of weight as the engine moved ahead of the front wheels. Then it was said that steering couldn't be speeded up too much right away because the public wouldn't be able to get used to it. It would certainly seem that in the intervening decade a gradual process of education could have taken place to give us something nearer three turns from lock to lock.

One thing has consistently irritated us about power steering and its status in the U.S. It's expressed in this phrase from U. S. NEWS & WORLD REPORT: "... the imports lack such features as roominess ... power steering and power brakes." It must be made clear now that power steering is neither a desirable "feature" in itself or a "significant improvement." It is a power-robbing make-shift way of making a poorly-balanced automobile driveable. Now that we have well-balanced automobiles, like the Tempest and the Buick and Olds compacts, it's time to steer sensibly. If we must have power steering, at least let it be quick.

**MIXTURE AS BEFORE** — If you've any doubt about the avowed intention of SCI to stay with the sports and racing cars when it becomes CAR AND DRIVER in April, we hope it'll be dispelled by the contents of this issue and those to come. Between these covers there's a unique and potent Alfa Romeo (page 26), France's plush new Facellia (page 30), the first complete story on the B.R.M. racing engine (page 38), the Crosley-powered Beast out of Class H (page 53), and first impressions of the Volvo P1800 (page 66). If these aren't sporting, we don't know what is!

Looking ahead, you can expect a major feature on MG's immortal K3 Magnette — how a car was rebuilt to as-new condition, and what it's like to drive it. Watch for a complete cutaway story on Bill Mitchell's Sting Ray sports-racer, and for some magnificent photos of the Cisitalia-Porsche Type 360, one of the most remarkable racing cars ever built. And for the April issue, the first edition of CAR AND DRIVER, there's a rare morsel: a track test of the Birdcage Maserati!

**VARIED OWNERSHIP** — A magazine's philosophy is largely determined by its staff's inclinations, anyway, and this one certainly seems to lean to sporting cars. Here's a list of the automobiles owned by the SCI staff members listed on the masthead, not including Contributing Editors and Staff Artists:

Alfa Romeo 1750 cc

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—Karl Ludvigsen



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sedan the hottest  
road car going...



Karol Miller takes his Champion-sparked flying Ford through the timing traps for a stock-car record at '57 Bonneville Nationals.

# Karol Miller and his flying Fords



The Singer-Miller AA Dragster takes off on run that won "Top Eliminator" title at '59 National Drags. Machine had blown Lincoln mill, with Champion spark plugs. Dragster was only Miller machine that didn't go to and from track under its own power.



Karol Miller (rt.) poses with Trophy Queen Glynanna Ham and Rodney Singer as they receive Champion Spark Plug Trophy at National Drags. Miller has dozens of performance trophies, all won with Champions.

On a street in Houston, Texas, an old jalopy pulls up beside a '60 Ford Starliner. The two kids in the junker gun their engine and grin mockingly at the driver of the Ford. It's an obvious challenge for an illegal "Green Light Grand Prix." The driver of the Ford exchanges knowing smiles with his passenger—and completely ignores the challenge. Karol Miller doesn't believe in breaking traffic laws.

He just breaks records. A few weeks earlier, he sent that same Ford Starliner bulleting across the dazzling white wasteland known as the Bonneville Salt Flats—to set a new record for fully equipped standard stock cars running pump gas. *A 2-way average of 157.902 mph!*

That Ford Starliner is the fastest road car in the country—and it's truly a *road* car. Not only did Miller drive it to Bonneville from his home in Houston, he drives it all over the western United States on business. The car has over 40,000 miles on it, and carries weight not usually found in racing machines—including an air conditioning unit and power steering. Miller also likes to get good gas mileage. On the trip to Bonneville, with the car almost ready for its successful attempt at the record, he averaged 19 miles per gallon!

Miller is his own mechanic. He has "fooled around" with engines ever since high school days, when he started on his father's Ford pickup. His entry into formal speed competition came when he went to the Bonneville Nationals in 1956, just to look things over. In the process,

**CHAMPION SPARK PLUG**



**Karol Miller** pilots his latest Champion-sparked flying Ford to 157.902-mph record at Bonneville. Car did 150 mph on the salt before final "setup" for record attempt. Miller races strictly as a hobby, but says, "As long as you're going, you like to win."

he proved that his '56 Ford Victoria was the second fastest stock car on the salt. His 2-way average was 140 mph, accomplished with a 312-cubic-inch engine competing in a class with a top limit of 408 inches. He beat all but one of these cars. Not bad for a first try!

He took the same car back in '57, but with a *smaller* Ford mill: 302 cubic inches. Miller and his machine were the sensation of the meet. The fastest stock car there, his Ford rang up a 2-way average of 150.097 mph—breaking the previous record by 12 miles an hour!

In '57 he went to Daytona Beach. His '56 Ford was placed in the red-hot "experimental" class—because it was not of the current model-year! He finished fifth, just behind the factory teams. In 1958 Miller returned to Daytona. This time his '56 Ford ran the wheels off everything on the beach! His 2-way average was 153.110 mph, with a one-way mark of 155.844. This time his mill was a blown 272 inches—built from a Ford truck engine!

Having proved he could go on sand as well as salt, Miller dropped Daytona and Bonneville in '59, and got interested in drag racing. His friend Rodney Singer has a Cadillac-powered dragster. Miller fixed up a Lincoln engine he had lying around and installed it. Miller gave up his dual role of driver and mechanic, leaving the dragster driving to Singer. They had a good year. For a climax they went to the National Drags in Detroit—and came home with the Champion Spark Plug Trophy for Top Eliminator. The Singer-Miller machine was the

nation's top dragster!

With no new dragging fields to conquer, the team retired from quarter-mile competition, and Karol Miller devoted full time to his business, which is drilling holes for oil-field exploration. But he kept his hand in, working in odd hours on his new '60 Ford. With just three working days left, he made a last-minute decision to go to the 1960 Bonneville Nationals. He got the car ready in time, and the 157.902 mph record resulted.

Karol Miller has always used Champion spark plugs. "I've had very good luck with them," he said. "With Champions, I just never have to worry about spark plugs."

Like many another engine expert, Karol Miller has proved that—whether you're interested in speed or mileage—you can't beat Champion-sparked performance!

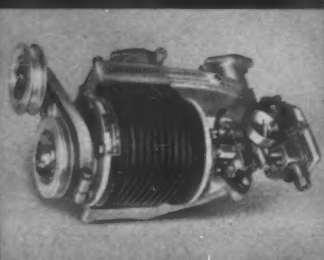


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## LETTERS

### MULTIPLE MOTORWAYS

It is not often a mistake creeps into your excellent magazine, but I would like to point out a minor one in the "Hottest Healey 3000" article (September). Britain does not have "one and only Motorway, the M1."

To my knowledge there are three at present and quite a few more being built. The existing ones are London-Birmingham, M1; Preston Motorway, M5, and Lancaster Motorway, M6. I'll grant you the latter two are not as long as the M1, but they are Motorways. The Preston M/way opened well before the London-Birmingham M/way.

A. P. Wood  
Aintree,  
Liverpool, England

### INSURANCE FOR RACING

I noticed in your September issue a long letter by Mr. Ron Miller, of Los Angeles, about insurance matters.

Since I am in the insurance business and since, as you know, I am also an automobile enthusiast, I have occupied myself a great deal with these questions. I can naturally understand that there are two sides to each story and that the insurance underwriters are not happy to insure cars in racing events. I have, therefore, done a considerable amount of work on this and now have an underwriter who is willing to insure racing cars as per the attached schedule. I am sending this to you because I feel that it might interest a number of your readers. This insurance is, as you can see, not exactly cheap. However, I firmly believe that if the underwriters were to see, after getting some experience, that this is not "bad business", it would be an easy matter to renegotiate the rates after a year or two.

A. E. Goldschmidt  
30 Broad Street  
New York 4, New York

The minimum premium, according to figures from Mr. Goldschmidt, would be \$50 per car per race and practice session. If, for example, you had an MGA with an actual cash value of \$2500, you would have to insure it for at least 90 percent of that figure or \$2250. In a 0 to 50 mile event, the rate would be 2½ percent of the declared value, or about \$57. For events of 50 to 100 miles, the rate would be 3¼ percent of the declared value; for 100 to 200 mile events, it would be 4½ percent and for 200 to 300 mile events, it would be 6½ percent. Premiums would have to be paid prior to the event and are not returnable after the car enters the meeting area or premises. The insurance would cover only cars participating in SCCA regionally or nationally sanctioned races and the car entered and insured would have to pass SCCA technical inspection.

The driver would have to hold an SCCA license for at least one season. Novices and those with an insurance loss record for the immediately previous season would have to seek special approval.

Assuming you have insured your car and you damage it in a race, you would have to pay for the first \$250 damage (minimum) or ten percent of the car's actual value up to \$1000. If wanted, the policy could include a clause covering the car's accessories, and it would be agreed the insurance could be renewed after each race meeting. The insurance would not include regular road risk insurance or cover the car while en route to or from an event. For detailed information about the insurance contact Mr. Goldschmidt.

### SCHTUNKE REVISITED

The story about the fabulous Shtunke (SCI, November '60) was most interesting. I would like to confirm the rumor about one of the Shtunken being smuggled out before the infamous destruction.

The old night watchman, Hans Klumpf, who helped design the valve-gear, could not bear to see his beloved charges destroyed. Late that fateful night, he smuggled one of the brutes out of the *werke* and hid it under a pile of hay on his nearby farm.

The next morning, while everyone's eyes were still wet with tears from watching the mass scrapping, Hans *silently* drove off in the rescued Shtunke, never to be seen again (in Bavaria anyway). He took the Shtunke to England and sold it to Sir Antony Hancock, of East Cheam. Sir Antony, the eminent connoisseur of wheeled vehicles, was also a lousy driver and soon "lost it" in a corner, smashing, breaking or bending everything except the engine. This he quickly had installed in his "blower" Bentley (thereby being the originator of engine swaps).

Before too long, "Ole Leadfoot" Hancock turned over 6000 rpm with the silent Shtunke engine—it promptly disintegrated. At this time, Sir A. had the remaining engine pieces chiseled out and had a "blower" Bentley engine installed. This car has had no further mishaps and is now in daily use on the streets of London.

Most people fail to recognize this last of the great Shtunken because of the Bentley body, Bentley chassis and Bentley engine—but we who are *true* Shtunke enthusiasts know that we frequently see this sole remaining model around Piccadilly and Regent Street.

Capt. Larry S. Rogers, II  
Uxbridge, Middlesex,  
England

### SEEKS RACING NEWS

Having been a regular reader of your magazine for some years now, I must congratulate you on producing America's best motoring magazine.

As I would like to correspond with racing enthusiasts in the United States, I would appreciate it if you would publish my address. I am secretary of our local club, the Otago Sports Car Club, Inc., and I am very interested in all types of motor-ing competition, with the emphasis on racing.

W. T. Flett  
P.O. Box 299  
Dunedin  
New Zealand



*"Just the best of everything..."* says Lucius Beebe, who recently acquired a new Gran Turismo Studebaker Hawk



**Lucius Beebe has Hawk Number 15** Mr. Beebe's new Hawk is the latest addition to his famed collection of modes of transport. This distinguished gentleman, in either his private railway car, his Rolls-Royce, his Bentley, his

Jaguar and now his Gran Turismo Hawk, always travels in style.

The Studebaker Hawk is distinguished by its V-8 power, four-speed transmission\* and its masterful maneuverability and control. In brief, it's fun

to drive and an object of pride to own. Every Hawk has its owner's name and the car number engraved on a special instrument panel plaque.

Place your order now...at your Studebaker Dealer's. \*Optional

*The Hawk is also manufactured and sold in Canada.*

## DOES YOUR SPORTY CAR HAVE A LEAKY LID?



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Hi, there! Have you given up your bet in favor of a crash helmet because it is waterproof? Are your new stovepipe slacks getting soaked from a drizzle through the overhead? Are your wraparound sunglasses collecting snowflakes from a rent in the roof? Has your navigator refused to rally anymore because she is prone to pneumonia? Is that what's troubling you buddy? If so, take advantage of our fantastic replacement top values. You, (repeat YOU), can install an MG Mitten top (hood, verdeck capote, cielo) in a trice, using the easy-to-grasp instructions, no special tools and very little of your talent reservoir. Dig the magnanimous prices on these factory-guaranteed tops and don't wait any longer.

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Be sure to give model, year, serial# (and for Sprites whether windshield has snaps or metal strip) when ordering. Immediate delivery from stock assured.

Then, why not choose up sides and order a protective car cover to keep the new top sanitary when not in use? Remember, the MG MITTEN is the ORIGINAL car cover and still the finest. Others are frank imitations and many are made from materials we have rejected as unsuitable and harmful to your car's finish.



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And a..... for the same car  
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## EUROPEAN NEWSLETTER

In company with the 1961 International calendar of motor sport events, the FIA has released the following information about the much-discussed 1961 Championship.

First of all, it seems that the FIA has accepted the formation of an advisory committee of racing car constructors and will permit two members of the committee to sit in on the regular C.S.I. (Commission Sportive Internationale) meetings. As far as discussion of the possibility of having two different Racing Formulas count for the '61 Driver's Championship, the FIA has decided the following: the 1.5 liter Formula 1 will be the *only* category to count toward next year's Driver's Championship, but the international governing body has accepted the idea of an Intercontinental Formula (2000 to 3000 cc), no superchargers, no weight limit, cars running on commercial gasoline—presumably Avgas), and has set a program of five races. They are Snetterton (March 25), Silverstone (May 6), Monza (June 29), Turin (September 17) and Watkins Glen (October 8). Disputed in this series will be the so-called "Coupe Intercontinentale". Championship Formula 1 races in 1961 will be held at Monaco (May 14), Holland (May 22), Belgium (June 18), France (July 2), England (July 15), Germany (August 6), Italy (September 10) and the USA (November 26). Note that Argentina, Indianapolis, Portugal and Morocco are no longer included in the list of Championship events. Inasmuch as the FIA has suggested that the slower European tracks be used for the 1.5 liter—450 kg—unblown Formula, it will be interesting to see whether the Automobile Club of France will move its Grand Prix to Rouen or Clermont-Ferrand instead of using the traditional Rheims track, one of the fastest in Europe and much more suited to larger-engined machinery. The required distance this year for F.1 will be a maximum of 500 km (310.6 miles) or a minimum of 300 km (180 miles).

The inclusion of Turin on the Intercontinental calendar will, provided the Turin Automobile Club is willing to organize the race, be one of the most interesting of the year, for the average speed there is around 95 mph on a very challenging course laid out in Turin's Valentino Park; a race has not been held there since 1955.

Speaking of Turin, the new automobile museum there, "Museo Dell 'Automobile Carlo Biscaretti Di Ruffia" was dedicated November 3. The site on which the museum stands consists of 46,000 square feet and the modern structure houses not only one of the most complete collections of

historical passenger and racing cars but also displays connected with the history of coach-building, tires and gasoline as well as a library, reading room and large theater. SCI will soon take you inside the Turin museum, so don't miss future issues.

### REAR-ENGINEED BIRDCAGE

Not a museum piece, the rear-engined Tipo 63 "Birdcage" Maserati is taking shape. This much appears certain: it will have independent suspension with A-arms and coil springs on all four wheels; the engine will be inclined at 33° and the bore of the engine increased to get a full three liters.

Maserati is donating its first 250F to the auto museum at Turin. Bearing serial number 2500, the car was completely restored and repainted by the factory. Many parts such as the front suspension, exhaust pipes and such were chromed for the display.

### EUROPEAN DECLINE?

Declining U.S. sales have hit the European automotive industry like a bomb. Perhaps this is the result of being over-optimistic and of neglecting the first principle of every industrialist—never depend too much on export markets.

While British, French and German manufacturers protest that the picture couldn't be darker, one can't help having the impression that they are howling louder than is really necessary in an attempt to apply leverage against their respective governments. British producers would like nothing more than to see an expanding home market (and so would their consumers), with the over-40 percent purchase tax on new cars cut to a more reasonable rate. The French want De Gaulle to cut gasoline taxes and the Germans want more and better roads.

Still, most European finance ministers claim, very realistically, that the auto industry, even if it is slowing down and experiencing personnel layoffs, never had it so good. In a way they're right. In spite of the U.S. export recession, car sales and production are much, much higher than in 1957 or 1958 and the main trouble of the industry is that to fulfill the former sudden and enormous demands of U.S. buyers, manufacturers drastically improved and streamlined production methods. Now that they've got means to build the cars, what are they going to do with them?

Auto firms as a whole, have adopted an attitude of anticipation. They expect to regain their balance, and this means a few new cars which should have been brought out in the fall are still on the shelf while development of others, which were not scheduled for production in the near future, is suddenly being rushed. The industry, realizing that the U.S. market is stabilizing, is already looking for other outlets, such as Africa. But since African conditions differ from American ones, the ideal cars for that market must be different too.

In this respect, the British automobile industry is in a very strong position. They have a lot of experience in this direction, more than their Continental competitors. The lessons they learned selling cars to their former dominions will undoubtedly help them recover from the U.S. catastrophe.

—SCI





## Breaking the boredom barrier!

The sun is shining, the road is black and narrow, rushing at you from around the next bend. You touch the brakes gently to position your Corvette just so, shift from fourth to third and slice through the turn with surgical precision. No squeal of tires, no lean or sway, only the memory-sound of that crisp V8 exhaust and a little dust cloud at the roadside hint of your passage. You've broken the boredom barrier! You've savored one of the best production sports cars in the world, the '61 Corvette. The standard model will outperform all but handmade European competition cars costing three times as much, and you can specify optional equipment\* to make the car as luxurious (Powerglide, automatic top) or as fierce (four-speed close-ratio transmission, Positraction, Fuel Injection) as your heart desires. We're wasting time; get your Chevy dealer to let you take a ride down that winding road we talked about. You'll buy a Corvette quicker than we could wave at you!

## Corvette by Chevrolet

Chevrolet Division of General Motors, Detroit 2, Michigan

\*Optional at extra cost





THE AUTOCAR, LONDON

## Fessia's Flavia

**Lancia fondness for unorthodoxy in design is continued with the latest model. It is a front-wheel-drive sedan powered by a water-cooled flat four.**

► Regardless of the fanfare and flag-waving with which warmed-over versions of last year's models are introduced, there are a few really new cars around. One of these is the Lancia Flavia, a front-wheel-drive, four-door sedan powered by a water-cooled, flat four. The new Flavia fills a breach in Lancia's line, coming between the Appia and Flaminia both in price and performance. Though its engine is not much larger than the former's 1100 cc, the interior space is startlingly generous, providing ample room for six passengers. Though acceleration isn't much, it can cruise fully loaded in the eighties to give an excellent combination of economy and performance. It caused a mild sensation when it was introduced at the Turin auto show in November.

Technically the Flavia strongly resembles the Cema Caproni, an 1100 cc four-seater offered in prototype chassis form by the well-known Italian airplane manufacturer at the Paris show in 1947. But this isn't so surprising, since

Lancia's chief engineer is Antonio Fessia who, as a young engineer, designed the ill-starred Caproni automobile.

The engine block consists of two aluminum castings in which chrome-plated cast iron wet liners are fitted. Three bearings support the short crankshaft. There are three rings per piston, two compression (one of them chromed) and one oil-control. Two chain-driven cams are installed—one for each bank of cylinders—low in the block. They operate the valves by pushrods and rockers and the combustion chambers are hemispherically shaped. The pistons are cut away to provide valve clearance. Three rubber mounts tie the engine and transmission to a subframe which also carries the front suspension, steering and radiator. The subframe itself is connected to the unit body at six rubber-cushioned points. The transmission is four-speed, all synchromesh.

Lancia devotes the world over will lament the loss of the V4 to a boxer layout. Much the same chagrin was expressed when the well-known sliding-pillar independent front suspension, introduced in the Twenties, gave way to wishbone I.F.S. with the introduction of the Flaminia. The nostalgic will recall that two types "made" Lancia's name: the long, square Lambda, in its time a fast two-liter sports tourer with what may have been the first production use of unibody construction, and the beetlebacked, short-nosed and popular Aprilia which Vincenzo Lancia brought out

in 1937. It was the first mass-produced sedan with inboard brakes at the rear, similar to those of the post-war Aurelia and Flaminia. Ugly, yet agile and charming, the Aprilia was long considered by Europe's automotive cognoscenti to be a yardstick for performance in the 1.5-liter category.

The Flavia, while bucking the norm in automotive design, is hardly as unorthodox or revolutionary as were the Lambda and Aprilia in their time. Its exterior, conservative and uncontroversial, is in no way exciting and its layout may suggest the Lloyd Arabella introduced last year. But looking at a car doesn't tell you much.

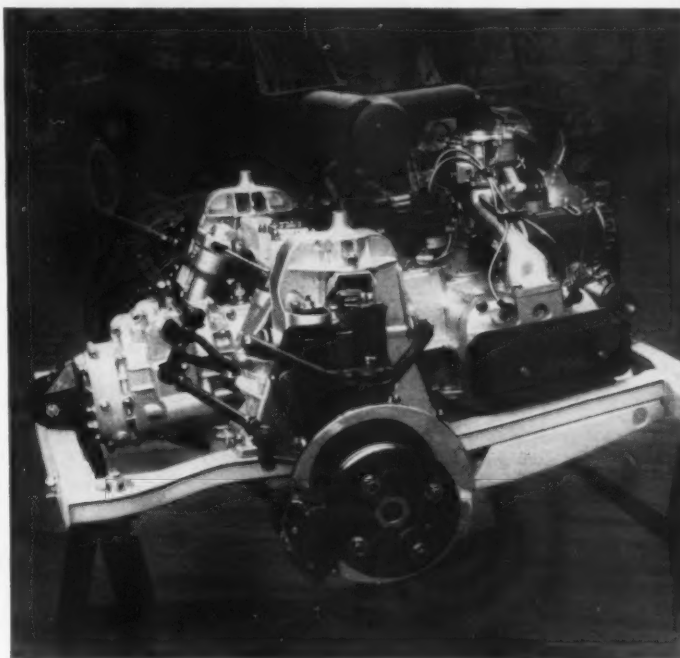
The Flavia has excellent roadholding, wholly up to Lancia standards. Its servo-operated four disc brakes, with separate circuits for front and rear systems, offer fantastic stopping power. And it's as comfortable and as silent as its big sister, the Flaminia. While recognizing the weight penalty of extravagant soundproofing, Lancia technicians spared no effort in making the Flavia absolutely silent. The factory maintains that the engine cannot be heard at an idle (they say, "an imperceptible whisper") and accelerating in neutral "the whisper becomes a hum, something like an electric motor." In their factory magazine, they recall the story about balancing the English penny on the radiator of a Rolls Royce; "we thought it must be a joke, but it must be the same with the Flavia." Incidentally, they describe the shifting as "swift and instinctive."

With a curb weight of 2700 pounds, the Flavia offers something less than sporting performance (0 to 50 mph in about 15 seconds). That's quite a load for a 1500 cc engine, even if it will develop 78 bhp at 5200 rpm. Still horsepower isn't everything and with the new Lancia you feel that torque is.

The front suspension is independent with a semi-elliptic transverse leaf spring. Attached to the subframe at the mid-point, it features bonded rubber links at each end between it and the parallel-wishbone suspensions. At the rear, a very orthodox solid axle/leaf spring arrangement is used. Telescopic shock absorbers are used front and rear and a torsion anti-roll bar is used front and rear.

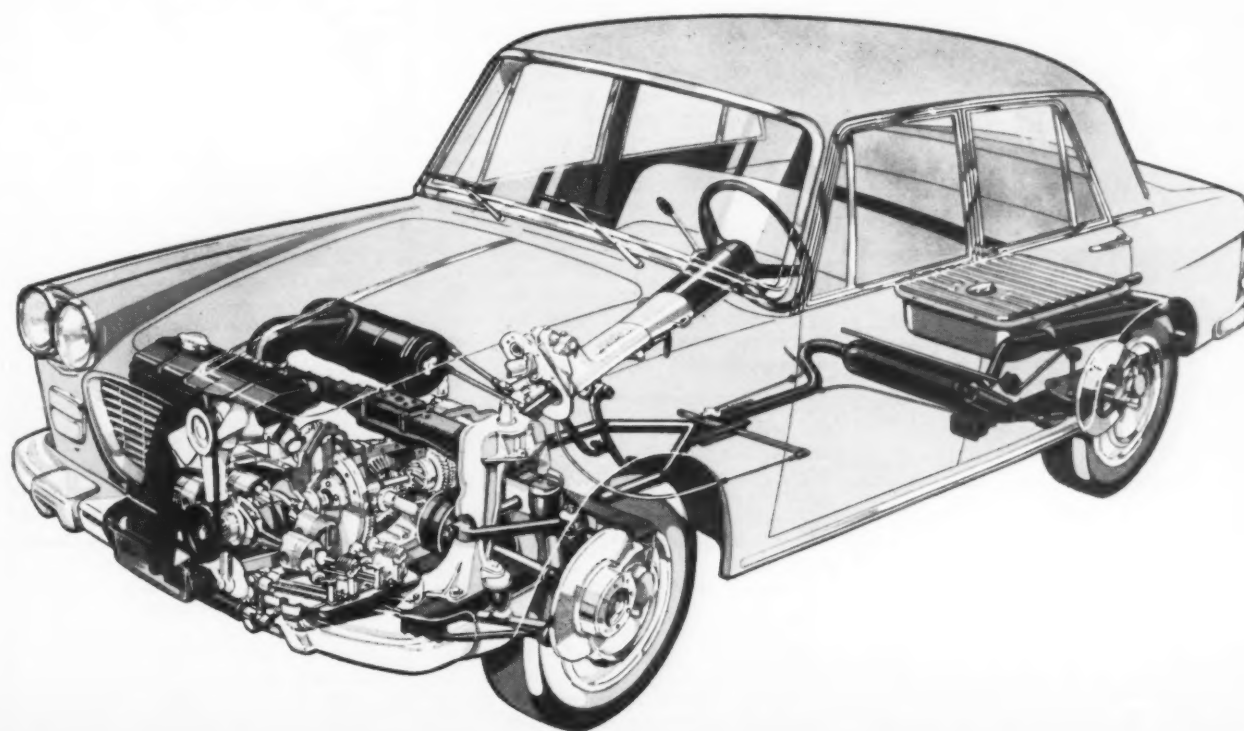
Deliveries of the new Flavia, in Italy, are expected to begin next December. The price in Italy will be about \$3000. Its interesting mechanical features, its first-class performance—in short, just the fact that it's a Lancia—augur well for its success. Perhaps the enthusiast's reservations about the new model will be dispelled in a few months when a G.T. version is expected to appear.

—SCI



New engine uses cast-iron wet liners supported by two aluminum castings. Two camshafts, one per bank, operate valves through pushrods and rockers.

With a transverse spring in front, plus anti-roll bars at both ends, the Flavia should carry on the Lancia tradition of excellent roadholding.





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### EMBLEM PARTY GLASSES

Each fine, crystal glass features over 40 different sports car emblems fired in rich 24 ct. gold with black accent; have non-tip heavy bottoms. When ordering specify (a) Double Old Fashioned, (b) Swedish Goblet, or (c) Zombie. Ideal Christmas gift. Set of 4 (reg. \$9.95), now only \$8.95. Matching king-size ashtray or server (reg. \$9.95), now only \$6.95.

### NEW VW GAS CAP

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### NEW 1961 CATALOG IS HERE!

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C.O.D.'s require 1/3 deposit. Calif. res. add 4% state tax, 10-day money back guarantee. Be sure to state size, style, make, and color when applicable. Thank you.

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14/SPORTS CARS ILLUSTRATED/FEBRUARY 1961

## PIPELINE

Brooks Atkinson, dean of New York's drama critics, took a sharp bead on the auto industry in the NEW YORK TIMES and fired a broadside at what GM president John F. Gordon terms the "widely misunderstood" process of "dynamic obsolescence." ("See Detroit Newsletter, October, 1960.)

The story, titled "The Chameleon Auto," bore the subtitle "This year's chariot will be next year's 'dog,' but the show must go on." It was written when GM opened its Motorama in New York. Noting the pivotal role the industry has in the economy, he said, "If you love your country, buy a new automobile in 1961, or earlier, if possible."

Mr. Atkinson said, "Every year when the new models are unveiled, with Helen of Troy in the front seat or Tom Sawyer with fishing pole lolling on the cargo deck, it becomes apparent to everyone that last year's models were primitive, inadequate and, in some respects, dangerous. To judge by the new advertisements, we were stupid to buy them. Every year we are curly dropped from good society."

Noting that as automobiles have become more reliable the important role of the engineer has apparently been delegated to the designer, the reviewer continued, "By introducing hokum into the appearance of a car, the designer can beguile the public into buying something it does not need. . . . He can make the appearance of the car so bizarre that he can stimulate sales the next year by returning to sobriety. Having designed fins, which are tawdry and dangerous, he can present himself in the guise of a public benefactor a year or two later by throwing the fins into the rubbish heap."

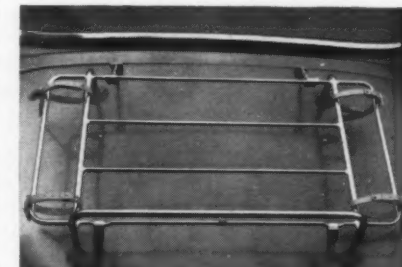
In conclusion, he said, "The 1961 models have returned to functionalism with soft curves, projectile-molded fenders, classical lines and sloping hoods that increase road visibility. They also eliminate the "dog-leg" at the edges of the windshield. Now that I look at my 1960 car I realize that, although it was a masterpiece last year, it is now a dog. Detroit has a short memory. It has already abandoned the patriotic citizens of 1960." While Mr. Atkinson's comments may express feelings of a large segment of our population, we feel he has understated the truly significant engineering advances that have been made. While annual change remains a highly debatable phase of the auto industry, it does serve to sugar-coat technological gains which the public finds singularly unappetizing. . . .

Feel in an expansive mood? Seeking some kicks? Send a dollar, the name of your car (its brand name, not its pet name) and your own name and address to James Auto Specialties, Dept. S, Box 151 M, Pasadena, California and you'll get a "goodie" for the car. If you ask, you'll

also receive a free catalog. Don't ask us what you'll get for your buck; according to James, known for their "instant goodies" for sports and imported cars you'll get something worth at least 25 percent more but even they don't know what they'll send. . . .

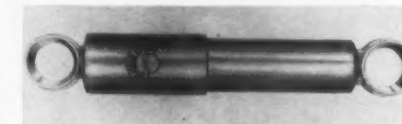


Trailing a Cooper and a Porsche Super 90 to the checker, a Volkswagen Formula Junior took third place in SCCA Central Florida Regional races at Daytona in September. It was driven by Linley Colman, of Jacksonville. According to John F. McLeod, also of Jacksonville, the car, built by Nardi, may be the forerunner of similar VW-F. Jrs. In Florida, it ran in stock form. It's not an official Volkswagen activity; the proposed production is a private enterprise. Interested? Contact Mr. McLeod at P.O. Box 3095, Jacksonville 6, Florida. . . .



Once again enthusiasts who are also skiers are conducting their annual quest for ski and luggage racks for sports cars. One source we've found offers them for just about any car. German-made, the Lietz racks are imported by Ronette, Dept. S, 89-39 221st Place, Queens Village 27, New York. There's a universal model, the L298 (pictured) which comes complete with ski-holding straps; it's priced at \$42.95. Other models include the L300, for Porsches, priced at \$44.95; the L302, for Porsches, a deluxe model priced at \$69.95; the L 301 for Karmann Ghias, at \$44.95 and the Volkswagen roof rack at \$29.50. All of the racks are chrome plated and the universal model included adjusters on the forward legs so skis will clear the top. . . .

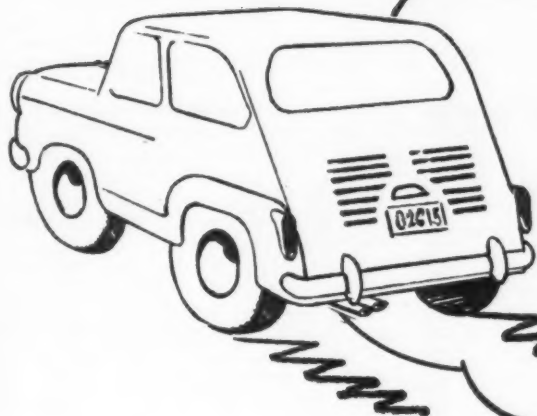
At SCI we get many requests for information about shock absorbers, particularly for



units to replace stock items from drivers with an eye to better performance. One brand we have no hesitation in suggesting is the Dutch-made Koni shocks. Made for a wide range of cars, including domestic products, Konis can be adjusted for hard or soft ride depending on your preference. For some cars that come equipped with

(Continued on page 16)





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RLP 5020 (mono) XK 8003 (stereo)

This exciting new recording contains only six minutes of sound, but without any question this is the most extraordinary sound ever put into the grooves of a phonograph record. In October of last year we flew to Stuttgart, Germany via Lufthansa and recorded all the cars in the Mercedes-Benz museum. There are dozens, and all the racing cars were taken out onto the test track and driven at speed by Karl Kling. They were recorded in all their uproarious sounds, and

then through the miracle of modern electronic engineering, a race that never took place was created in which these seven cars (2 W125's, 1 W163, 1 W165, 2 W196's, and a 300 SLR) approach the starting grid, line up, rev, and then excitingly start. This is followed by lap on lap of tremendous racing sounds, shifting, braking for pit stops, and finally the finish of this special six minute classic. These cars have the most fantastic sounds ever produced by racing cars, and in fact, when we mastered our recordings two loudspeakers split in our studios as a result of the volume. These cars, of course, are the very ones driven by Fangio, Lang, Fagioli, Seaman, Caracciola, Von Brauchitsch, Moss, Collins, etc. \$1.00 per minute may sound expensive, but these sounds are well worth the money. You high fidelity buffs will get a charge out of the stereo version because it is pressed on a very special new material which brings incredibly high responses (polymax), and the record starts at the centre and runs out in order to relieve centrifugal pressures on the grooves.

## sounds on the salt flats....



RLP 5506 (mono) 95506 (stereo)

Griff Borgeson, contributing editor of Sports Cars Illustrated, has put together a remarkable record of the sounds emanating

from the land speed record attempts this summer on the salt flats of Utah. Bonneville is the home of the Mickey Thompsons with their four-engined cars, as well as the people who like to put saddles on airplane jets and call them cars. In any case, every outlandish and wildly imaginative automotive device was out there this year shooting at the mark, and Griff and RIVERSIDE bring to you the beautiful noises they made. Included are such classic entries as the Brissette Brother 264 mph bell tank lakester, Dr. Ostich in his 267 mph Flying Caduceus, Art Arfons's Allison turbocharged, airplane-engined special, Bob Bowens' Shadoff Special at 273 mph, and last but not least, Mickey Thompson running at 406 mph.

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(Continued from page 14)

arm-type shocks, Koni has a conversion kit for installing tubular units. No matter what your car, chances are good there's a Koni made to order. For full information, contact Kensington Products Corporation, Dept. S, P.O. Box 77, Lenox Hill, New York 21, New York.

They look great on most sports cars, but do you regret having wire wheels on yours? They are, to put it mildly, a nuisance to keep clean. Intrem American Industries, Dept. S, Box 428, Los Altos, California has a solution. Neoprene seals that simply slip inside the hubs. They're priced at \$4.95 for a set of five... include the make and year of car...

The New York Region of the SCCA will sponsor a **National Sports Car Exposition** in New York City February 9 through 13 at the Statler Hilton Hotel, 33rd Street and 7th Avenue. It will be held in conjunction with the club's annual meeting...

Chrome plated interior door handles are available as a replacement for the standard wire pulls on the **Austin 850 and Mini-minor**. Priced at \$4.50, postage included, they're sold by Group Two Engineering Co., Dept. S, 116 Eastcote Avenue, Greenford, Middlesex, England.

The sporting scene... **King Hussein**



of Jordan recently won a 10-lap Kart race in England on a Lambretta-powered Trokart at an RAF airfield...

One of the longest and toughest rallies will be held in Canada this spring. The route will take competitors some 3000 miles from Montreal to Vancouver. Sponsored by the British Columbia International Trade Fair and Shell Oil Company of Canada, the event will finish at Exhibition Park, May 6 and is being held in conjunction with the Trade Fair which will open May 3. The Canadian Automobile Sport Club, the F.I.A. and the Royal Automobile Club of England have approved the rally...

Huschke von Hanstein celebrated his 50th birthday in January. We send him our best wishes for another 50.

Sometimes our eyes are bigger than our page allotments. Witness the inclusion of the **Herald-Climax** road test in the coming-next-month announcement for February. The Herald-Climax, and it's quite a car, will be in an upcoming issue so please be patient with our sometimes overeager ambition to bring you the latest on the greatest in automobiles.

In our enthusiasm over the subject, we neglected to credit **Griff Borgeson** with the January cover photo.

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"Shorty" with visor \$36.50 ppd., less visor \$35.00 ppd.  
"500TX" Jet Helmet \$38.50 ppd., less visor \$37.00 ppd.

### BELL "500TX" & "SHORTY"

### BELL "500TX" & "SHORTY"

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by  
amco



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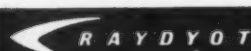
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**DEALERS INQUIRE**



# DETROIT NEWSLETTER

by Roger Huntington

Detroit cars earned more credit marks for being pretty fast machinery at the recent Bonneville runs. Speed expert Karol Miller, of Houston, Texas, who rocked the salt a few years ago by running 150 mph with a mildly-modified '56 Ford sedan, did it again — this time a two-way average of 157.92 mph with a mildly-modified 1960 Ford!

The car is amazing in what *hasn't* been done to it. It started as a stock '60 two-door stick shift with the 300-bhp power pack, air-conditioning, power steering, etc. Karol decided to run Bonneville only a week before the event. The block was bored for .040 oversize '58 Edsel pistons, to get 368 cubic inches and bring it up closer to the BX class limit of 371 cubic inches. Big-port 360-bhp Interceptor heads and exhaust manifolds were used, and a big Lincoln-Carter carb went on the manifold. The heads were not ported, and the lower end had stock clearances. The cam was an Isky RR-800 roller-lifter kit (fairly mild). The rear end gears were changed to 2.92 to 1. The engine was broken in on the drive up to Bonneville, and delivered 19 mpg at 60-65 mph!

On the salt, the wheels and tires were changed to early 6.00x16 Firestone Bonnevilles. On his first run Karol turned 139 mph against the wind with stock mufflers. He got it up to 150 with the stock mufflers after some minor tuning and a new set of plugs. The top one-way speed of 159 mph was turned with header plugs removed. The rpm reached 5700.

And that's about all there was to it. Karol certainly has the knack for making FoMoCo stuff run. His Lincoln engine won the 1959 NHRA National drags at Detroit. The 302-cubic-inch Ford in his '56 model put out over 300 bhp, unblown, on gas. More power to you, Karol!

## COMPACT RECEPTION

All the new compact car lines out of Detroit (F-85, Tempest, Lancer, etc.), are having one unexpected effect on early-model sales. There seems to be great public interest in the new cars — showroom "traffic" is good — but people seem very slow to actually sign on the dotted line and buy. Many dealers are beginning to think that the wide variety of models in every price class, and the overlapping of individual makes into several price classes, are only serving to *bewilder* the buyers. There's so much to choose from in each price class that they can't decide what to buy — and they just keep looking. Two years ago a person interested in a "standard" low-priced car had to decide between a Ford, Chevy and Plymouth. Today he has to consider these three — plus the Dodge Dart

and Mercury Meteor, plus the new F-85, Special, Tempest, Lancer and Comet compacts. Overlapping into this price class are the Rambler, Corvair, Falcon and Valiant compacts, and on the top side you could consider the economy Olds, Buick, Pontiac and Dodge models. And just to keep things interesting, most dealers still have a flock of unsold 1960 models to get rid of.

Now here's a real promising business for the bright young man — U.S. auto retailing: only \$100,000 initial investment, 1/2 percent net profit on sales, 60-70 hour work week, and the respect of your community! Anybody interested?

## LEAF REFINEMENTS

The student of U.S. car design might wonder if the age-old leaf-spring Hotchkiss rear suspension is coming or going. GM has now given up completely on leaf springs (some say because of the unsolvable problem of inter-leaf friction that harshens the ride) . . . but at the same time Ford Motor comes up with one of the cutest gimmicks for a leaf-spring suspension we've seen in years. This is the rubber-mounted front shackle joint that allows some fore-and-aft movement as the wheel rises over bumps. This has definitely helped their ride, and doesn't seem to give objectionable rear-end steer. But GM still thinks coils are the answer, even with the complex linkages required to spread suspension loads around on a unit body. It may cost a little more, but they say the ride is better, especially on quite *smooth* roads where inter-leaf friction would virtually cancel out spring action.

So they'll probably all eventually end up on air springs anyway.

## CORVAIR HEADS AT LAST?

The California speed equipment industry may beat Chevrolet to production of a set of high-performance cylinder heads for the Corvair engine. The word is that a well-known L.A. specialty house is developing special aluminum head castings that can mount on the stock cylinder barrels and use the stock pushrods. They would feature larger inclined valves, big streamlined ports, and a semi-hemispheric combustion chamber. There have been numerous rumors of such experimental heads under test at Chevrolet Engineering, but nothing has come of it — and it doesn't look like anything will for a while. Meanwhile, the "California" heads are supposed to be available later this Winter.

The potential of the Corvair engine with improved breathing could be very interesting. The short stroke should allow a power curve peak in the 6500-7000 rpm range, so at least 1.5 bhp/cubic inch should be available on gas in all-out trim (unblown). Whether the accessory heads would be that good on breathing remains to be seen. But I predict a brisk market for something like this if the price is within reason (say \$300 per set). The Corvair seems to appeal to enthusiasts — and they will pay for good performance.

Almost to the day, a year after FoMoCo announced Edsels were being discontinued came news De Soto production was ceasing after 32 years. Rumors said there'd be a 1961 sports car with that name. In 1928, there were 200 De Sotos made each day, about the number per week in late '60.

—R H



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"The new Rover 3-Litre is probably the most luxurious 'small' car in the world. The Rover has been designed for quiet, long life and driving ease. The immaculate leather and walnut interior reflects the British company's policy of using only the best material, where it shows and where it does not, as well. The Rover shares twenty-odd points of mechanical similarity with the Rolls-Royce, and every knowledgeable tester who drives a Rover inevitably compares it with that make. It's one of the world's great cars." KEN FURDY IN PLAYBOY

# ROVER

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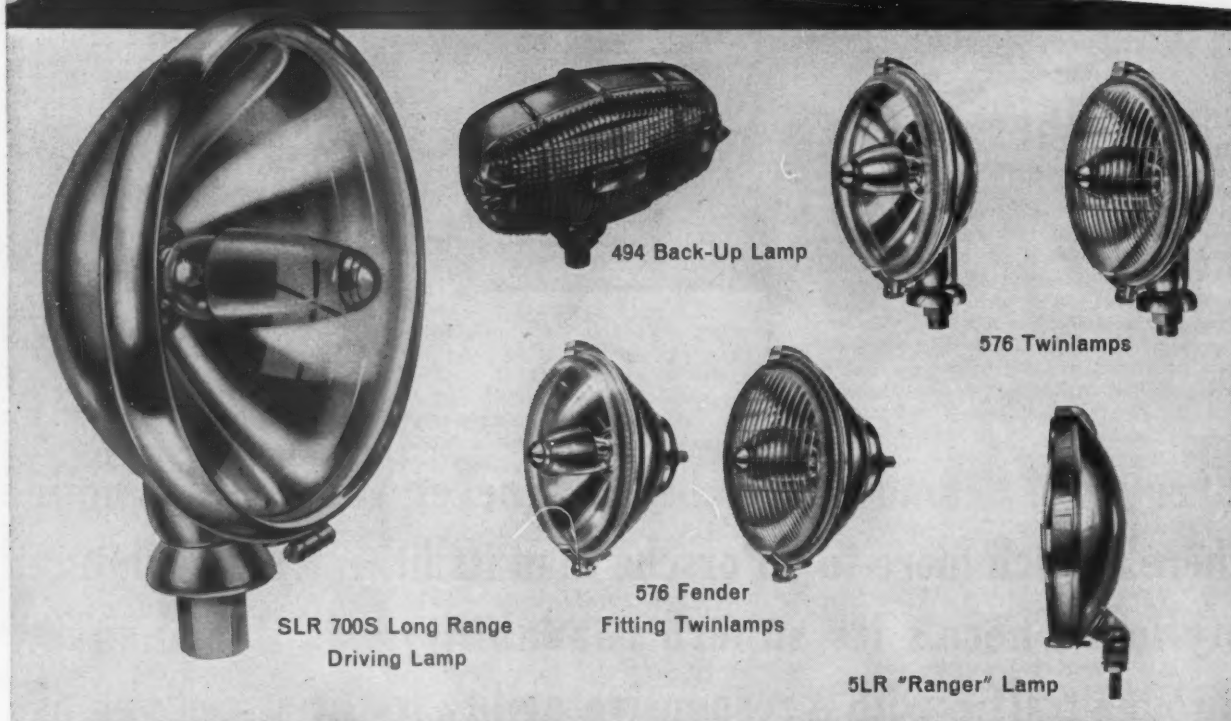
Ever drive behind a Porsche? Whenever you do, you notice there's much more to a Porsche than its lithe, wind-sculptured styling. There's its superb roadability—as it maneuvers through traffic with a responsive agility to the wheel you can almost feel yourself. You admire, too, the stirring getaways and commanding sureness of its stopping power. Then you watch—as it soars out onto the open road—taking the sharpest curves and steepest hills in stride. Here's where you begin to fully sense the pure motoring pleasure Porsche owners enjoy mile after mile. Why not enjoy it too? Ask for a guest-drive soon—and discover for yourself why—"All it shares with other cars is the road." Porsche of America Corporation, 527 Madison Avenue, New York 22, N.Y.

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**SPORTS  
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# '61s FROM EUROPE

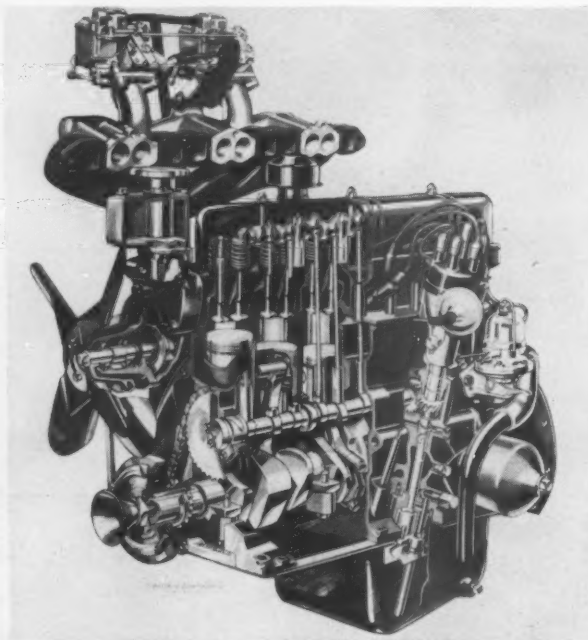
We received a timely letter from Murt Day, of Littlefield, Texas. He asked, "Please let me know what you think about the imports. Will we still be able to buy them and parts for them in, say, two years? Are the compacts going to take over?" Here's what we think. You will definitely be able to buy imports and their parts in the next two, ten or 20 years. For imported car buyers, the future is bright. Products are being improved; parts distribution is better; prices are being cut and warranties are being liberalized. Foreign manufacturers are aware of American needs, and are facing the compacts' challenge squarely. Sports cars will continue to gain in popularity and performance. Imports are here to stay. Confirm this in the varied array on the next four pages and in the other new-car features in this issue.





LOTUS SEVEN AMERICA

The least expensive Lotus you can buy, the Seven America, features a restyled nose section for '61. Essentially unchanged from the one tested by SCI in June, 1960, the car's new prow has, nevertheless, a more modern, cleaner line and the grille opening is closer in shape to that of the F.1 Lotus. Priced at under \$3000, it offers a Chapman-designed space frame, coil spring/tubular shock absorber units at each wheel, a BMC A-type engine, close-ratio transmission, and rear end. With its admittedly spartan accommodations for two, a fairly casually-designed top and an 80 miles per hour top speed, the Lotus Seven is an enthusiast's delight.



SIX-CYLINDER STANDARD

A new engine for the Standard-Triumph Vignale Vanguard, a two-liter six, plugs the gap in the British car sales line. Up to now, there have been many 1.5-liter cars and quite a few in the 2.5 to 3-liter range, but few in the mid-range at a price many could afford. While the engine is currently being used in a 90-mph compact four-door sedan, enthusiasts will no doubt wonder what the chances are for a "TR-6." Frankly, we don't know, but it's a move to watch for. The in-line six has a four-bearing crank. Its bore and stroke are 2.94 and 2.99 inches for a displacement of 1998 cc. The o.h.v. unit features push-rod-operated valves and bears two new-design semi-downdraft Solex B-32 PIH carburetors. They are mounted on an aluminum manifold which leads to a cylinder head having an 8-to-one compression ratio. In general layout, the new six closely resembles the Triumph Herald engine. For example, unlike the Vanguard four, no cylinder liners are used. Compared to the four, the six, despite its two extra cylinders, is only about an inch and one-half longer and it is 57½ pounds lighter. The actual weights are 452.5 compared to 395 pounds. Thus the new engine not only fits neatly into the existing body/chassis, but it improves weight distribution too. An interesting feature is the bolting of the radiator header tank to the engine. This allows a shallow, wide, cross-flow radiator to be used saving frontal height. Manifolds are neatly mounted with a one-bolt clamp so there are no hidden nuts.



1600 CC SUNBEAM ALPINE

In the good old days when the first Sunbeam Alpine was introduced (the early '50s), the slogan was "Drive a Sunbeam and Eclipse Your Friends." In '61 it should be easier to put them in the penumbra thanks to a displacement boost from 1494 to 1592 cc, a torque hike that keeps torque sustained above 90 lb-ft from 2600 to 4600 rpm, and a mild horsepower lift, from 83.5 to 85.5. Other mechanical changes include a stiffer crank, bigger water pump, self-adjusting clutch, bigger oil pump and elimination of eight grease fittings. The muffler's been made quieter — too bad — and bigger shock absorbers and wider rear spring leaves are used. Weather protection has been improved, the steering wheel diameter's smaller and leg room is increased through adjustable pedals.



BERKELEY BANDIT

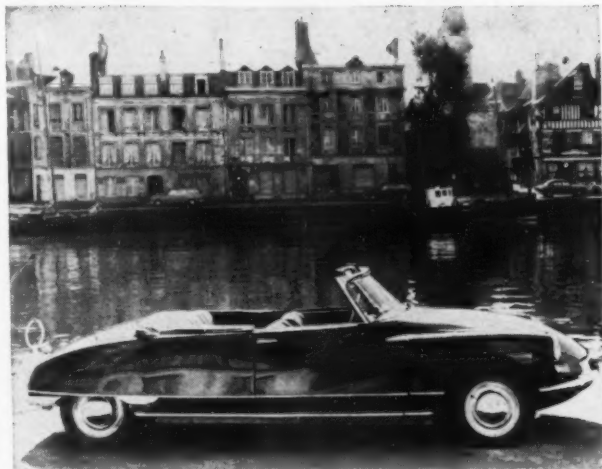
One of the most interesting new cars at the London Show was the Berkeley Bandit, an 80-mph two-seater powered by a Ford Anglia engine, featuring independent suspension all around and 8-inch disc brakes on the front wheels.

The Bandit from Biggleswade (where Berkeleys are made) has a 997 cc displacement, a compression ratio of 8.9 to one and 39 bhp at 5000 rpm. The 4.125-to-one rear axle center section is retained, but universal joints are installed to make it independent. Coil spring/tubular shock absorber suspension components are used at the rear in conjunction with 8-inch drum brakes. The front suspension is of the McPherson strut variety with no sway bar. The stock Anglia clutch and transmission are used. The fiberglass body has a large trunk; a wood-rimmed wheel is standard and engine modifications are available on special order.



RENAULT ONDINE

The Paris Automobile Salon saw the introduction of the Renault "Ondine." Based on the familiar 5 CV, or Dauphine, the Ondine is simply a luxuriously-appointed sister of the popular French import. Externally, the only changes visible in this photo are attractively-styled ventilated disc wheels and a new script on the fender. The Ondine, in France, carries a pricetag about \$125 more than the standard *cinq cheveaux*. The four-speed Renault transmission and a mild hopup, featuring Gordini modifications, are included in the price. Other deluxe aspects of the Ondine include a lusher interior and such items as rubber cushions on the rear bumper over-riders. There was no immediate announcement that the Ondine would be available in the United States.



CITROËN CONVERTIBLE

Citroën's first convertible in over 20 years adds a new dimension to the stylish line. Priced at about \$4000, the Chapron-designed drophead offers luxurious appointments, such as leather upholstery in 11 color choices, 13 body colors and three carpeting options. However, it still looks like a long wait for the much-talked-about air-cooled flat-six engine. The convertible, of course, has front-wheel drive and is propelled by the 1911 cc water-cooled engine used in the ID and DS series. There are four speeds forward and the engine runs fine on regular gas. Citroën's air-oil suspension, disc brakes and automatic jacking are standard. Optional items include power steering, power brakes and an automatic clutch. On a wheelbase of 123 inches, overall length is 189 inches. Only minor detail changes to the dashboard and trim were seen on the DS and ID models at the Paris Show. The Citroën's smooth, flowing lines seem particularly adaptable to various body styles. The sedans, the station wagon and the convertible all manage to retain an air of individuality.



ALPINE BERLINETTE "TOUR DE FRANCE"

Racy looks and racy performance are skilfully blended in the new Alpine Berlinette "Tour de France," one of the 1961 offerings of the small French company. Although large-scale competition participation is at an ebb in France, there is still wide-spread interest in *Le Sport* and Alpine is one of the specialist firms catering to high-performance enthusiasts. Renault-based, this measures a scant 44 inches short. Maximum speed, depending on the engine selected, ranges from 105 to 115 mph. There are three power options: 747 cc, 50 bhp; 845 cc, 59 bhp and 998 cc, 70 bhp. The purposeful-looking Alpine uses Renault's five-speed transmission. Designed specifically for competition, the "Tour de France" sells for about \$3200 in Paris. Others in the Alpine line for 1961 include the "2 plus 2" coupe and the "Sport" convertible and coupe, but for our money, the "Tour de France" is the most attractive of the lot. All of the cars have fiberglass bodies. For more information, contact the manufacturer, Societe des Automobiles Alpine, 13, Rue Forest, Paris. Not a car for taking on shopping trips, it's rare and racy.



OPEL REKORD

The new Rekord from Russelsheim, where GM's German subsidiary, Opel, has its factory, has refreshing restyling in the 1.5 and 1.7-liter models. The new Opel, following the lead of the parent company, replaces a body scarcely three years old—new, in fact, by European standards since a three-year body change is something unprecedented in Continental industry. The new body is about an inch lower, about 3½ inches longer and about a half-inch wider than the predecessor. The sharply wrapped-around windshield is abandoned and with it, the dog-leg. Flatter, straighter lines predominate, visually lowering the waistline through a thinner roof line. The horizontal theme is accentuated through the wide bar grille and squared-off rear end.



FIAT 600 D

An engine displacement boost of 21 percent and a subsequent power increase plus numerous detail changes mark the Fiat 600 D. Immediately apparent is the hinged ventilator. Other changes include more displacement (767 vs. 633 in former models), 32 bhp at 4800 rpm, a top speed of 70 mph and reduced fuel consumption. The air filter has been modified and a centrifugal oil filter (as used on the new Simcas) is standard. Starting is now accomplished merely by twisting the ignition key. For true students of the art of automotive progress, it may be interesting to note that the number of louvers on the rear deck is now 36 compared to 30 on past editions. Standard equipment includes windshield washers. Reclining seats are an option. The D improvements are included in the convertible and Multipla (station wagon) versions. Small in size, gigantic in numbers, the Fiat 600 D is a tidy package.



OSCA 1600 GT ZAGATO

A brand-new OSCA, the 1600 GT coupe was unveiled at the Turin auto show with a body by Zagato. Even standing on a pedestal, the car exudes a feeling of fleet performance. Priced in Italy at \$5500, it has a brand-new tubular frame with independent suspension on all wheels. The rear suspension is similar to the former Fiat V8. The Maserati brothers are talking in terms of as many as 150 units and a racing version is ready—if the performance of the car matches its specifications, it will be another feather in their corporate hat. The propulsive urge comes from the Fiat 1.5-liter double-overhead-cam engine, but with OSCA breathing equipment. How fast will it go? Over 130 mph.



FIAT 2100 S

Like the Innocenti 950 Spider on page 25, the Fiat 2100 S is a venture of the new O.S.I. corporation in Turin. Using Ghia's designing talents and the productive capabilities of Fergat S.P.A., the 2100 S is a good example of that virtually wholly Italian concept of auto manufacturing: take a basically sound production design and make it better with styling and performance improvements. Selling for about \$4000, the handsome four-passenger coupe uses the Fiat 2-liter six-cylinder engine developing 95 bhp at 500 rpm. Built on a 104.3-inch wheelbase, it has independent front suspension with torsion bars and shock absorbers. The rear axle is solid with coil springs. Its distinctive shape blends sharp and smooth surfaces, expresses motion, comfort.



FIAT ABARTH 1000

The diminutive four-wheeled tornadoes known as Fiat Abarths have a new stablemate, the 1000 with Zagato styling. "Based" on the revised Fiat 600 D, it has a specially-cast block for 984 cc. Two overhead cams and a brace of dual-choke downdraft carburetors are fitted, with some 90 bhp the result. The rear-end weight has been pared by shifting the radiator to the front of the car. To provide stoppability equal to the go, disc brakes are used on the front wheels.

The bore and stroke are 65 and 74 mm respectively, compared to 62.5 and 69 for the 850 twin-cam. The top speed for the 1000 is claimed to be well over 125 mph. Driving it, if only briefly, showed it to be tremendously exciting. Despite the flexible and smooth engine, the 1000, like all of Mr. Abarth's twin-cams, isn't a road machine—racing is its forte. The cast wheels are particularly attractive.

Continued for '61 by Abarth is its Allemano-bodied 2.2-liter coupe, introduced last spring. Experiencing few teething troubles, thirty of them had been built at this writing. Their price is high—about \$5000 in Italy, so only a handful of them can be expected to be seen in the United States. The 1000 pictured, as shown at the Turin salon, attracted huge crowds, its smooth air-sculptured lines contrasted with rough-hewn rocks.





L6.4 GHIA

"Luxury that moves with you" is the slogan for the L6.4 Ghia, a high-performance, high-priced four-place tourer. Built around Chrysler components by Carrozzeria Ghia, Via A. da Montefeltro 5, Torino, Italy, the car, which supercedes the Dual Ghia, is lush and lively.

Exhibited on the street outside the Paris Salon after a mixup about its display area, the L6.4 uses a 335-bhp Chrysler engine, Torque-Flite transmission, power brakes, torsion bar front suspension *et al.* Each of the 4100-pound cars is given a 500-mile road test before delivery and is guaranteed for six months. Normal equipment includes a two-speaker hi-fi radio, electric wipers, windshield washers, heater with front and rear defrosters, white-walls and tinted glass. Options include air conditioning and matched luggage. If you're in the market, it's priced at about \$15,000.



INNOCENTI 950 SPIDER

You'd never guess, though the wheels offer a clue, so we'll tell you — it's a Sprite! Technically, it's called an Innocenti 950 Spider. An exciting-looking car, it's priced about the same as the standard Sprite and is built in Italy. Along with the Fiat 2100 S coupe, the Innocenti Spider is built by Officine Stampaggi Industriali (O.S.I.), a new corporation in Turin born out of agreement between Ghia bodybuilders and Fergat. The Innocenti combine has entered into an agreement with BMC to build Austin A40s in Italy. At present there is no firm duty on disassembled cars shipped to Italy, so the price for an A40 there is more favorable than it would be if the whole car were imported.

One of the most admired and perhaps potentially best-selling cars at the Turin show, the Spider expresses one of the best Ghia designs. Facilities allow for production of at least 50 cars a day and an initial batch of 2000 spiders is planned, with 20,000 annually the goal. The price in Italy is about \$1800. Beneath the Ghia wraps, it's all Sprite. It weighs 1532 pounds dry, slightly more than the standard Sprite; it's 134.2 inches long and 57.8 inches high. The O.S.I. address is Via A. da Montefeltro 8-10, Turin.

What else is new? Even some cars announced as "unchanged for 1961" have interesting new facets.

**ENGLAND** English Ford Consuls, Zephyrs and Zodiacs are available with optional front disc brakes. The name **Lea-Francis** returns with the **Lynx** using a modified EnFo Six, disc brakes all around and a controversial body form. The Lynx has a tubular frame and a spacious cockpit.

At **BMC**, news includes optional knock-off disc wheels for the **MGA** which also is available with four-wheel disc brakes. Weather equipment's been improved with new side curtains. the **Austin** and **Morris 850** have improved interior trim, new piston rings for better oil mileage and are available in station wagon form as is the **A55**. **Vauxhall** has an optional automatic transmission and revamped bodies.

**Triumph** has standardized gray carpeting in the **TR-3** and **Herald**. The TR's clutch is now self-adjusting. **Rover** concentrates on detail changes including a revamped shift lever. **Hillmans** and **Sunbeams** have beefed-up transmissions and changed axle ratios for higher cruising speeds. The **A.C. Greyhound**, introduced last year, has been changed slightly and deliveries in the U.S. should have begun by the time you read this. **Aston Martin** has changed its piston rings for better compression sealing; crankcase breathing's better, oil and water capacities have been increased. Front windows are framed in chrome. **Austin-Healey** and **Sprite** are virtually unchanged. The big Healey has splash guards on the disc brakes. **Daimler**, acquired by Jaguar last year, continues with no hint of integration yet. The rumored

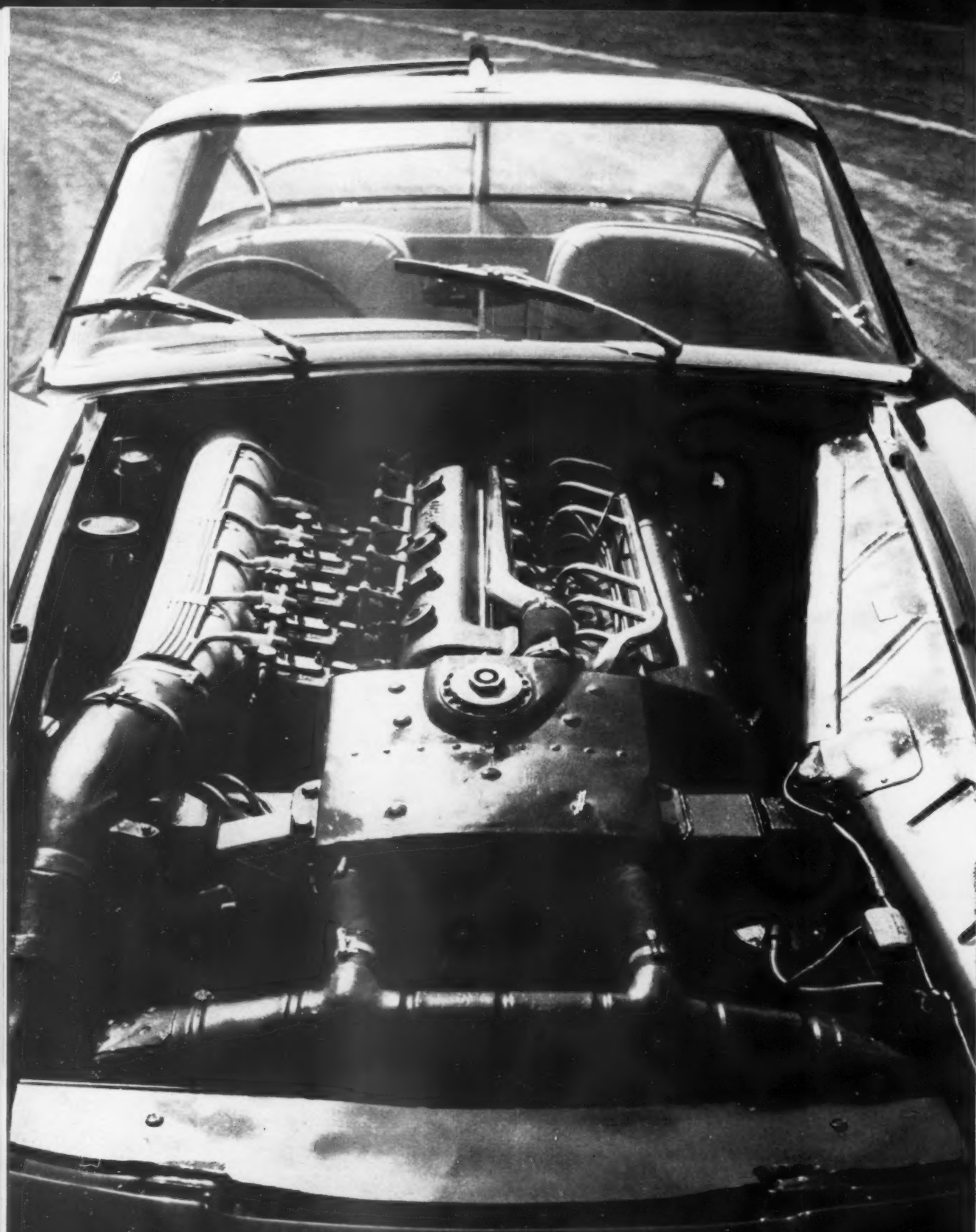
**small Jaguar** (1500 cc?) remains to be unveiled. **Jensens** have a new body. **Morgan changes!** No, not to the general layout, but the 4/4 has a Ford 105E engine while the TR-engined **Plus 4** has disc brakes standard on the front wheels.

**FRANCE** Manufacturers concentrated on making their cars better. **Panhard** has detail changes and it's possible to buy a **Le Mans-type D.B.** in coupe or roadster form. The shift pattern is now conventional, not sideways. **Peugeot** is getting set for the American introduction of the stylish **404** with the tilted engine. **Renault** carburetors and brakes have been improved on the new **Dauphines**.

**GERMANY** **Auto Union** and **D.K.W.** cars are unchanged and **Porsche** continues the **356B** series. **Mercedes-Benz** offers no surprises. **BMW** offers a two-carb version of its **700**.

**ITALY** The large **Fiat** line includes mainly detail changes but for the **500** and **600 D** models. The **Ferrari 2 plus 2** has been road-tested already by **SCI** and the **Lancia Flavia** has been described.

As you can see, there's a lot that's new for 1961. There are styling and technical innovations — some of them immediately apparent and the rest not so obvious. While this brief country-by-country survey lists only some of the news for '61, you can count on **SCI** to continue its coverage in depth of the whole automotive scene. In the meantime, even if you're not in the market for a new car, heigh down to the neighborhood emporiums to slam some doors and kick some tires.









# Last of the Red-Hot Alfas!

by Karl Ludvigsen

"... the same scream that electrified Le Mans spectators . . . performance that's long-legged and sustained . . . near the upper limits of our experience."

► Next to Mercedes, Alfa Romeo is the make most sadly missing from the rolls of modern racing car builders. No firm has a greater competition heritage, or a finer postwar record — unfortunately compiled during the late Forties, when relatively few Americans were tuned in to the European Grand Prix scene. While Alfa production cars reflect this heritage in a general way, with their massive brakes, twin overhead cams and fine steering, there's never been a postwar sporting Alfa Romeo that incorporated any of the actual mechanical methods that made the supercharged type 159 Alfetta the finest racing car of its day. There were, though, prototypes of great modern Alfa sports cars in the tradition of the 2.9-liter two-seaters of the late Thirties — prototypes that saw racing action but were never built for sale. This automobile is one of those prototypes, probably the finest of them all.

It began in 1952 when the Milanese factory contemplated the production of a big six-cylinder passenger car tentatively named the Giulia, an obvious big sister to the Giulietta. As a first step toward it, an engine was laid out with the then-current 1900T1 four as a base, using the same valve gear and 82.5 mm bore but adding two cylinders and in-



creasing the stroke from 88 to 92 mm to get a displacement just short of three liters. This engine, tuned to 200 bhp at 5500 on an 8-to-one compression ratio, powered the streamlined Touring-bodied machine that burst on a startled motor sporting world as the *Disco Volante* or "flying disc", in recognition of its shape — something of an exaggerated forerunner of the D Jaguar. Though revealed in 1952, the car made no racing appearances that year.

Then, in the 1953 Mille Miglia, a very impressive racing Alfa Romeo was unveiled, still nicknamed the *Disco Volante* by racegoers though it was only generally derived from the 1952 car. Still using the 1900T1 valve sizes (50 mm intake, 42 mm exhaust), the six was given bore and stroke increases to 88 x 98 mm to bring it to 3500 cc. It had five speeds forward instead of the original four, and the twin-tube frame of 1952 had been dropped in favor of a backbone-type space frame similar to that used later in the DBR2 sports-racing Aston Martin. Both had de Dion axles, but the later car had the rear brakes mounted inboard. Hammered together at the eleventh hour by Colli, the coupe bodies for these cars were magnificently hairy, with all kinds of scoops, trap doors, filler caps and rivets clustered on their exteriors.



SCI was the world's first publication to drive and describe the 3500 cc Disco Volante—it was one of the most savage machines we've tried.

It was one of these machines that Fangio drove to a spectacular second in that year's Mille Miglia, covering the final miles with the left front wheel flapping aimlessly with a broken tie rod.

The team failed to finish a single car at Le Mans, then made a test appearance before a Nürburgring sports car race before announcing their withdrawal from competition for the year. Five of these racing coupes were built; four are readily accountable for today. One was rebodied as a spyder by the factory, and driven to an obscure win by Fangio in the Supercortemaggiore sports cars race at Merano in 1953. It's in the Alfa museum today, next to the 1952 *Disco*. Another was given Boano touring-type coupe bodywork and sold (or presented) to Argentina's Peron in 1955. A third coupe went to Joakim Bonnier, who was then the main agent for Alfa Romeo in Sweden. He found the headroom too small and had the car rebodied by Zagato in roadster fashion in 1955, then competed extensively with it before selling it to Henry Wessells III, inveterate American Alfa enthusiast. Next it was owned by Shelly Spindel, when it was driven in competition by Rodger Ward and Bruce Kessler, and now it's garaged by John Willock of Long Island. A fourth car was reportedly given a Ghia coupe body, and is not now traceable. The fifth you see on these pages.

This chassis, once a prototype for the stillborn Giulia, has become a styling workhorse for Pininfarina—one of the "dream cars" of Italian industry. Its first incarnation was as the "Super Flow", a wild coupe with upswinging windows and plexiglass-covered front wheels. "Super Flow II" was a more conservative version, and the third manifestation was as an open roadster with twin headrests. First shown at

Geneva early in 1960, the fourth body is the one on these pages. Like all the others, it's intended to evoke reaction from the Italian populace regarding its styling features, the particular issue in this case being a two-piece retractable roof. To carry the question to the American populace, this car has made an extended tour of Alfa dealers in this country to ascertain our opinions on the styling and on the general prospects of a bigger Alfa Romeo model. This made it possible for SCI to be the first publication in the world to drive the 3500 cc *Disco Volante* and describe it in full.

Knowing that this car had been specially set up at the factory to be driven all the way across the U.S. and back, we figured it would be drastically detuned to a smooth-running, tractable—and relatively dull—automobile. It turned out to be one of the most savage machines we've ever sampled! If it wasn't still in full Mille Miglia racing tune, then perhaps it had the next warmer range of spark plug. Certainly it varied little more than that from all-out competition trim. How to tell? The sound, for one thing. Have you ever heard a good Bristol engine in race tune, as in a Frazer-Nash or A.C.? It's a frenetic crackle, with the sharp smoothness of a high-winding six against a deep, muscular background tone. The *Disco* sounds just like that—but about three times as loud! The sheer noise this car made was absolutely deafening. Without a doubt, it was the same scream that electrified the Le Mans spectators in 1953. Probably more good planning than good fortune accounts for the exhaust pipe's placement along the left side, away from the right-hand driving position!

At part throttle or when you back off suddenly this big six pops and bangs alarmingly, impatient to get going again. This isn't surprising in view of the gaping intakes of the six individual Weber 48DOM carbs (each with its own float chamber pressure-balancing pipe from the big ram air duct), and the drastic valve timing, which checks out this way:

	Intake	Exhaust
Opens	56° BTDC	75° BBDC
Closes	68° ABDC	45° ATDC
Duration	304°	300°
Overlap	101°	

Nevertheless, when you step down hard at relatively low rpm the engine comes in strongly and pulls inexorably away. It's fortunate this is so, because the gearing on this car is right out of this world. At 6500 rpm, where the engine develops a peak of something like 270 bhp, the speeds in the five forward gears are as follows: 66, 93, 122, 145, and 166! It was helpfully pointed out that fourth is direct drive and fifth an overdrive for fast touring. In driving the *Disco* around New York we only used third gear seriously twice, first and second sufficing otherwise. The result of this gearing is performance that's long-legged and sustained rather than violent, but—even so—near the upper

(Continued on page 78)

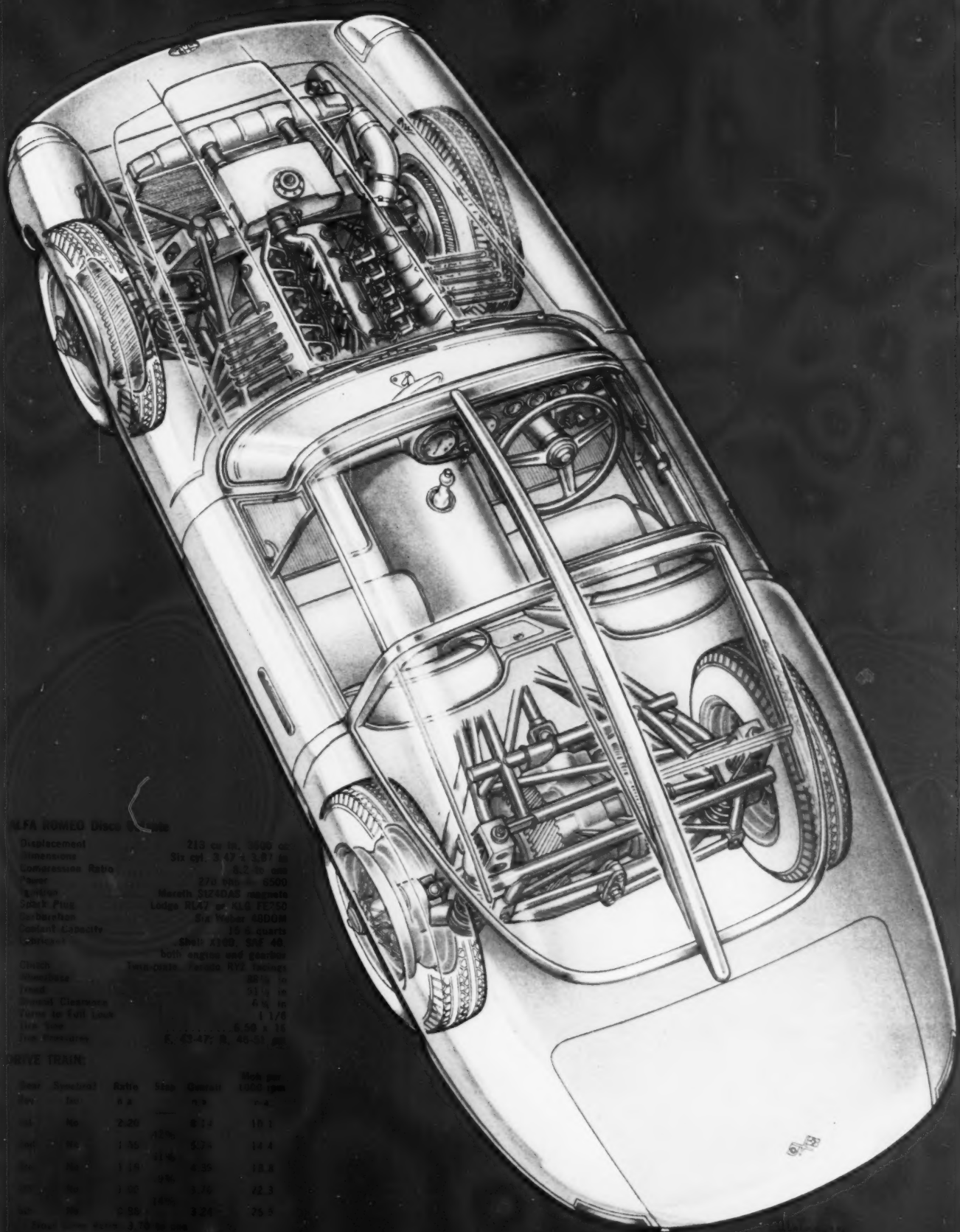


Alfa Romeo has sent its rebodied Disco on a cross-country dealer tour to sound out public opinion on its styling and the possibility of a new model.









#### ALFA ROMEO Disco Volante

Displacement	213 cu in. 3500 cc
Dimensions	St. cyl. 3.47 x 1.87 in.
Compression Ratio	6.2 to one
Power	270 hp @ 5500
Valves	Marath 3125045 camshaft
Shift Pkts	Lodge RL47 or AL5 FT750
Gearbox	5 x Water 4800W
Control Capacity	15 x gears
Control	Shift 2122 212 48
Clutch	both engine and gearbox
Steering	Turn-Steer, Double W/S, Steering
Front	31 1/2 in
Overall Clearance	4 1/2 in
Turn to Full Lock	1 1/2
Use Time	6.58 x 11
Use Features	5, 43-47; 8, 46-51 20

#### DRIVE TRAIN

Gear	Speed	Ratio	St. Gear	St. Gear	St. Gear
1st	1st	4.2	4.2	4.2	4.2
2nd	2nd	2.20	2.20	2.20	2.20
3rd	3rd	1.50	1.50	1.50	1.50
4th	4th	1.10	1.10	1.10	1.10
5th	5th	1.00	1.00	1.00	1.00
6th	6th	0.80	0.80	0.80	0.80

Final Drive Ratio 3.75 to one











## Road Research Report: **FACEL VEGA Facellia**



► The Facellia is the first completely new car by a relatively young French firm. Facel S. A. is best known for its Chrysler-powered HK-500 sports coupe and Excellence sedan, but makes most of its money making parts for Simca and 60 other companies. Unlike its bigger, older brothers, the Facellia is powered by a Facel-built engine that's brand-new and has twin cams. There are many other race-car-like features on the Facellia, yet the bodywork is so obviously meant for luxurious touring that we wondered just what sort of car this was. One place to begin exploring a car is to check its price tag and examine its neighbors in the market-place.

The price for advertising purposes is now \$4140 but the actual port of entry price on typically-equipped Facellias is likely to run about \$4400 with the inclusion of such standard "options" as disc brakes, heater and so forth. This, and the type of car that it is, puts the Facellia in a group with the Porsches (\$3800-4800), the Alfa Giuliettas (\$3500-4200), and surprisingly perhaps, the Ford Thunderbird (\$3800-4200). Others to which it might be related are the Fiat 1500 roadster (\$3300), the Daimler SP 250 (\$3700-4100), the Jaguar XK-150 (\$4650 and up) and the Mercedes 190SL (\$5200). A future competitor will be the Volvo P1800.

A quick run-down on the technical details makes the Facellia sound impressive. The twin-cam four-cylinder engine has a five-main-bearing crankshaft, the four-speed gearbox has synchromesh on all forward gears and there are Dunlop disc brakes on all four wheels. Beautifully architected bucket seats grace the cockpit and underneath is a tubular steel frame.

The steel body won almost universal praise for its original lines. At traffic lights our test drivers often found themselves answering "What is it?" from the left only to find the passenger answering the same question from the right. No other car in recent months has elicited so much favorable comment from passers-by.

### WIDE-RANGE ENGINE

With dimensions that are just over-square, the engine is an example of simple, modern design. It was designed by Facel S.A.'s own engineering staff in Paris.

Its two overhead camshafts are driven by chains and the sole unusual feature is that the cams themselves each ride in only two bearings. These are single-row ball bearings whose aim is to minimize friction. To increase their stiffness, the camshafts taper from the normally slim diameter at their ends ( $\frac{7}{8}$ -inch) to sturdy bulkiness ( $1\frac{1}{16}$ -inch) at the middle where the center bearing is usually located but this time isn't.

The usual reason for chain drive rather than gears on a twin-cam engine is to reduce noise. Even after tightening the chain tensioner, the Facellia tested sounded frantic under the hood for a touring sports car, especially over 4500 rpm. The exhaust note was very chipper and at full throttle it assured us and the bystanders that we were indeed firing on all four.

With a hand choke hidden under the left edge of the dash, starting was always prompt. The carburetor is the same progressively-linked twin-choke Solex 35-35 APAI used on normal Giuliettas. There were no flat spots anywhere in the range and, unlike the Alfa tested in SCI, December '58, hard cornering didn't make it "run out of gas."

The idle speed could be reduced to as little as 700 rpm but it was so much smoother at 1000 that this seems the preferred speed. Full throttle can be used without the engine bucking from as little as 1500 but the torque output suggests that 2000 rpm be used as a lower limit if discernable acceleration is desired. The test car consumed one quart of oil in about 700 miles of rather hard driving.

Despite the race-car-like specifications, the Facellia's character is docile and the only indication of its exciting specs is that it just keeps winding out 'way past where you think it's time to shift. In fact the power curve is still climbing at 6250, where it ends. We were assured that 7000 was allowable but in fact never exceeded 6500 during acceleration runs. Blipping the throttle while in neutral indicates that to achieve the mentioned docility, a heavier-than-expected flywheel seems to have been used.

At all engine speeds, the Facellia has a manly sort of vibration, a harsh tugging-at-the-leash feeling that exudes "mechanism." In contrast to this is the opulent

luxury of the interior and the ladylike soft smoothness of the clutch.

#### GEARING AND GO

Praiseworthy from any point of view is the provision of synchromesh on low gear. This represents forward thinking on the part of the Facel company, for surely all-synchro gear boxes are THE thing for those who eschew automatics.

The stubby, centrally-located shift lever is placed too far forward on the central tunnel. To seal it off attractively from below, its base is covered by a leather "sock" tied with a nylon cord. The throw is reasonable fore and aft, but the sideways motion to get from first-second over to third-fourth seems wide. When shifting, a stiff pull is required to get "through" the synchromesh, although if you overdo it the synchro can be beaten.

The indirect gears have progressive spacing (28, 53 and 76 percent steps) which gives a close third for performance on the road and a stump-pulling first for towing trailers uphill. All the indirects are a shade noisy. This, with the engine noise, effectively discourages frequent use of high revs. As a consequence, we were pleasantly startled to find the Facellia's acceleration times comparing with a Super 90 Porsche's. Zero to 60 took 13.2 seconds, and the quarter-mile came up in 19, in both cases with two aboard and with half a tank of gas. For top-speed runs we installed the optional transparent plastic fairings over the headlights (\$20 the pair), which unfortunately are illegal in some states. They permitted us to attain 104 mph (5700 rpm), well below the 114 figure claimed by the manufacturer, and just about equal to the 105 they claim without them.

#### STOP AND STEER

With eleven-inch Dunlop disc brakes at all four wheels, the price is raised \$180, a very reasonable sum in comparison with disc brake options on other cars. One would think that discs would completely and easily solve any stopping problems for fast cars with well-shrouded wheels like the Facellia. However the installation here leaves much to be desired, even though brake fade itself was never observed. The brake pedal has a very springy feel, though you never need press very hard as on so many other disc'd cars without servo assist. The pedal travel is extremely long to achieve this low pedal pressure, creating the spongy feel. Servo-assist will be available soon. Its effect will be to reduce pedal travel only, greatly increasing the driver's confidence in the brakes.

At the press showing of the Facellia at New York's Tavern-on-the-Green, we watched many others driving what was to become our test car on the morrow. We were distressed by the rubbery motion of the front wheels as the car was driven at low speeds across the cobblestones there. When we drove the car ourselves on the same pavement we noticed a perceptible tremor at the wheel. The front wishbones are heavily sturdy so we suspect that some subtlety of steering geometry

has been neglected. Perhaps installation of the disc brakes "pushed" the wheels too far from the kingpins.

Steering forces are always low. The low gearing matches the understeering characteristics and much lock is required for taking a sharp bend at high cornering forces. For changing lanes on the highway or for negotiating sweeping bends, quicker steering would instill more fun, for now the response seems insensitive under such conditions.

When the Facellia is pressed to the limit, opening the throttle full drives the car out into a wider path, while feathering it tightens the circle. Even with a full tank of gas, the forward weight bias ensures that the rear wheels always trail, preventing the setting-up of a racing drift. Considerable roll is evident and on fast bumpy roads the suspension can be heard thumping occasionally against the rubber stops.

#### TRUNK AND UNDER-HOOD

Here, as in so many other ways, the Facellia appeals only to deceive. The trunk lid is large (but light) and from its height one would guess at a vast compartment underneath. It is much larger than usual on sports cars but disappointing in its exploitation. Its usefully flat floor is itself quite high over the almost-16-gallon gas tank, but two-thirds of the floor area is used up by the spare tire, leaving little space with that useful two-foot depth. Those owners who bravely omit the spare tire will find that it's not that simple to get an unobstructed floor, as the gas filler cap sticks right up through the center of the spare. We feel that any gas filler cap inside the trunk is a poor arrangement, but this is by far the worst we've seen.

Hood flutter at speed is prevented by a novel arrangement without the expense of having two latches. The hinges are at the front and the single latch is located at the rear, well to the right. When closing the hood, a tongue on the left edge must be slid under the lip of the opening before pressing the right corner home to engage the latch. Since the aluminum hood is flexible, this is easy to do unless you are standing on the left side to check the dipstick.

Engine accessibility is very good and seems to have been intended for owner-maintenance. There are only 15 grease fittings, all but one on the front suspension, and the oil filter is *not* the throwaway type, a useful idea on a car which is bound to have a limited dealer network, at least for the first several years.

#### SERVICE EVALUATION

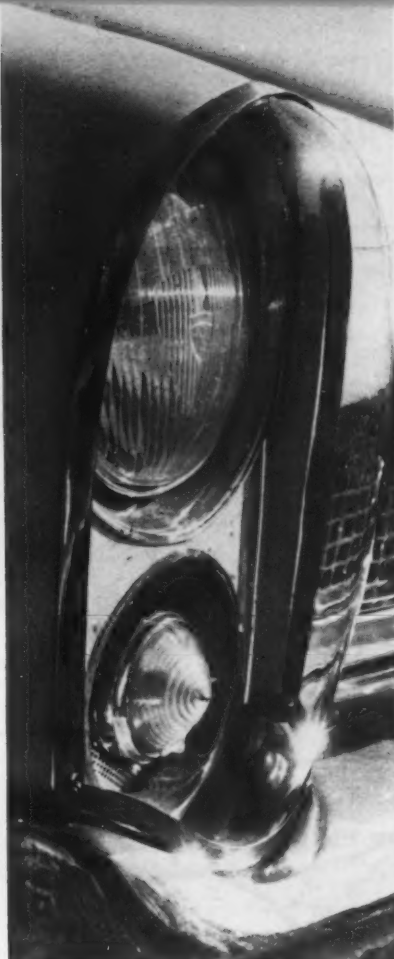
A new feature is added to the Road Research Reports this month. We are endeavoring to outline the sales and service facilities for each car tested and give a brief idea of the kind of service a buyer will find he's committed himself for.

Since Facel Vega Inc. has just taken over importing these cars from the Hoffman organization, only limited information is available now about the number of dealers in the USA. The new firm's intention is to establish Peter Satori of Pasadena as the West Coast

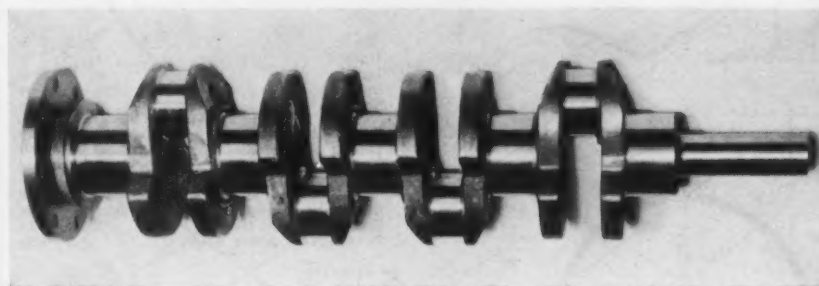
*(Continued on page 60)*



Test Facellia scrambles past the Stone Bridge on the old Watkins Glen course. It showed a fair amount of lean on this and other corners. Suspension produced a touring car ride suited to turnpike travel.



Headlight bubbles add sleekness to Facellia's fancy facade. They also increase top speed.



Facellia crankshaft has five main bearings with a commendable amount of bearing overlap. It is the heart of the 1600 cc double-overhead-cam engine expressly designed by Facel Vega for its newest car.



PHOTOGRAPHY: DOLIN

Swing-out door handle is interesting, if expensive, high-fashion hardware. It pleased the eye more than the hand.

Crisp lines of white Facellia offer interesting contrasts to curved tree shapes. Car's styling proved to be real pedestrian-stopper during test.





# Road Research Report:

## FACEL VEGA Facellia

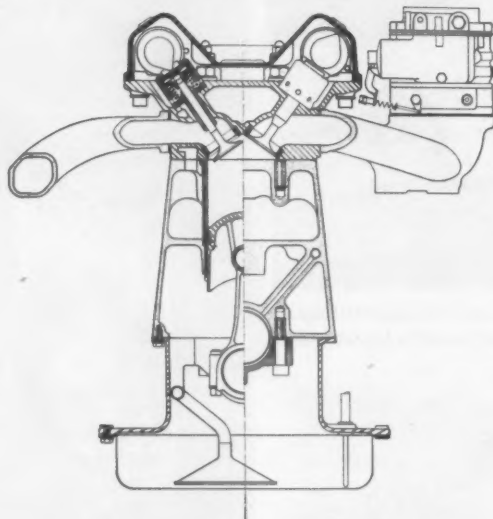
Importer:

Facel Vega, Inc.  
1888 Broadway  
New York 23, N. Y.  
40 on Eastern Seaboard  
5000 in 1961  
\$100,000 by January 1, 1961

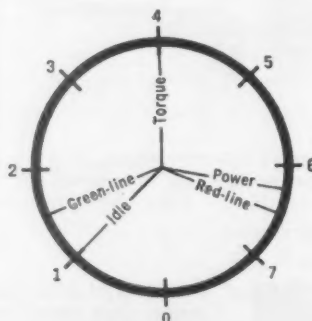
Number of U.S. dealers:

Planned annual production:

Dollar value of spare parts in U.S.:



Steering Behavior  
Wheel position to  
maintain 400-foot circle  
at speeds indicated.



Engine Flexibility  
RPM in thousands

### PRICES:

Basic Price (either Top)	\$4140 POE New York
Options fitted:	
Disc brakes	180
Heater	95
Two exhaust pipes	40
Map light	12
Windshield washer	3
Price as Tested	\$4470 POE New York
Other options:	
Both hard and soft tops	\$260
Headlight fairings	20
Tinted glass	n/a
Limited-slip differential	n/a
Fitted luggage	n/a

### OPERATING SCHEDULE:

Fuel recommended	Premium
Mileage	16-23 mpg
Range on 15.85 gallon tank	250-370 miles
Oil recommended	SAE 10W-30
Oil capacity	5 1/4 quarts
Oil change interval	1500 miles
Number of grease fittings	15
Lubrication interval	1500 miles
Most frequent maintenance interval recommended	Clean oil filter—1500 miles

### ENGINE:

Displacement	100.5 cu in, 1647 cc
Dimensions	For cyl, 3.22 in bore, 3.07 in stroke
Valve gear	Chain-driven twin cams, 70° included angle
Compression ratio	9.4 to one
Power	112 bhp @ 6250 rpm
Torque	105 lb-ft @ 4000 rpm
Usable range of engine speeds	1400-6500 rpm
Corrected piston speed at 6250 rpm	3350 fpm

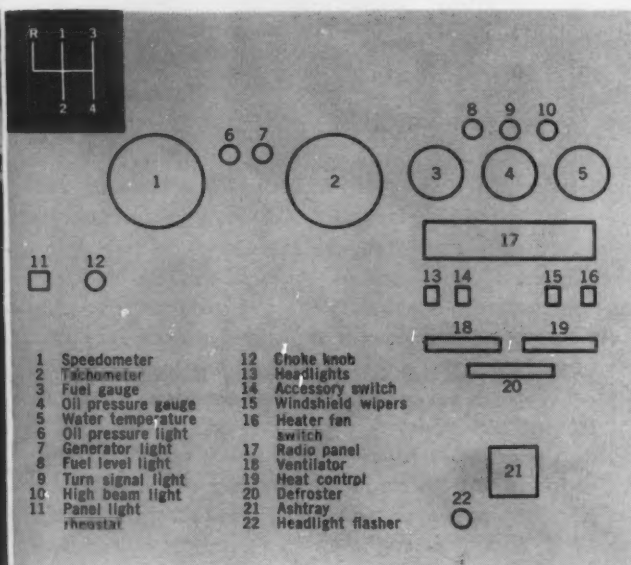
### CHASSIS:

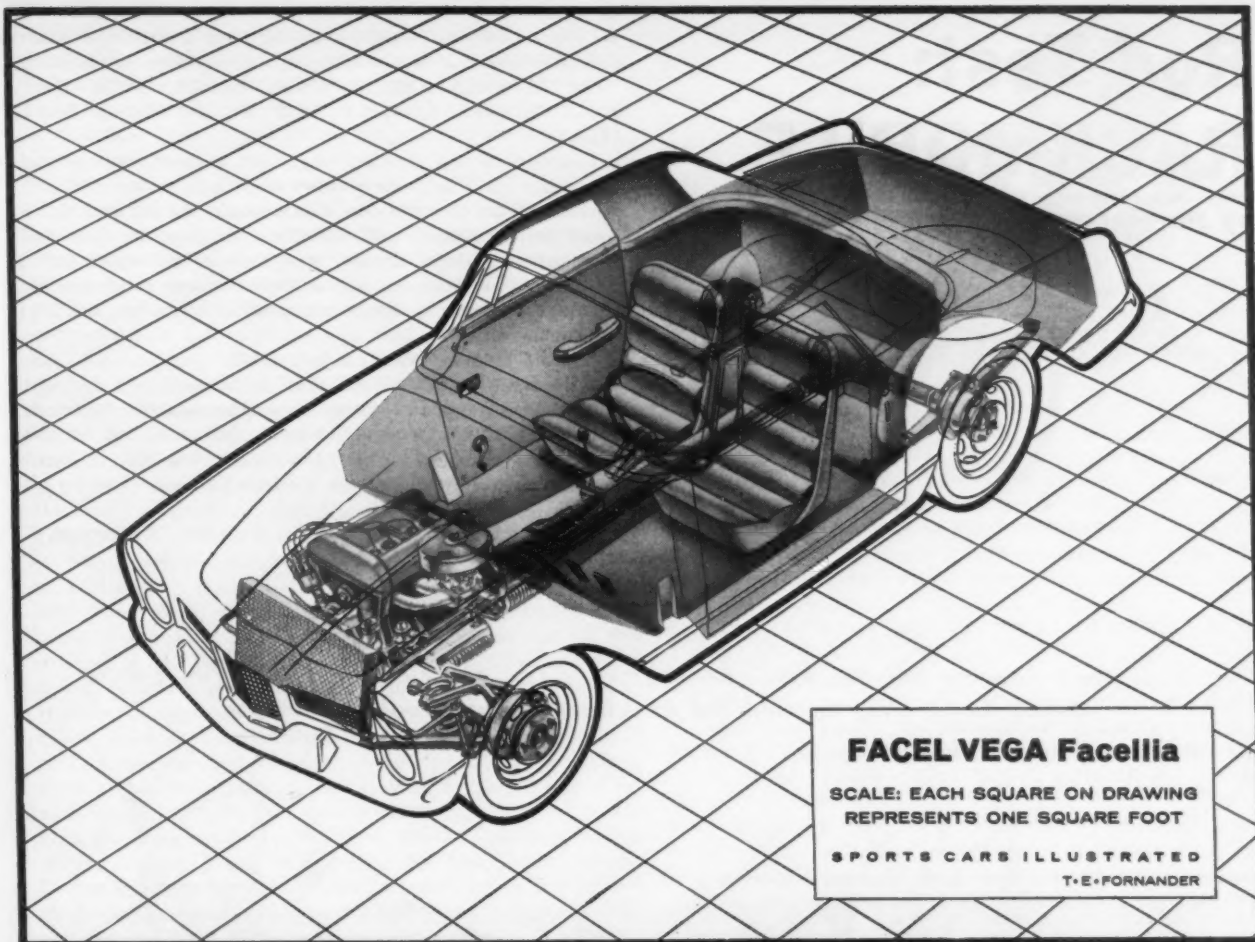
Wheelbase	96.5 in
Tread	51.3 in
Length	163.5 in
Ground clearance	5.0 in
Suspension: F, ind., coil, wishbones, anti-roll bar; R, rigid axle, semi-elliptic leaf springs.	
Turns, lock to lock	3.2
Turning circle between curbs	L, 40 ft; R 37 1/2 ft
Tire and rim size	5.90 x 14, 14 x 5J
Pressures recommended, F/R	25/25 touring
Brakes, type, swept area	35/35 high speed
Curb weight (full tank)	11 in disc, 488 sq in
Percentage on driving wheels	2530 lbs
	47 1/2 %

### DRIVE TRAIN:

Gear	Synchro?	Ratio	Step	Overall	Mph per 1000 rpm
Rev	No	3.12	—	12.82	—5.8
1st	Yes	3.45	76%	14.15	5.3
2nd	Yes	1.96	53%	8.04	9.3
3rd	Yes	1.28	28%	5.26	14.2
4th	Yes	1.00		4.10	18.2

Final Drive Ratios: 4.10 to one std; 4.56 optional

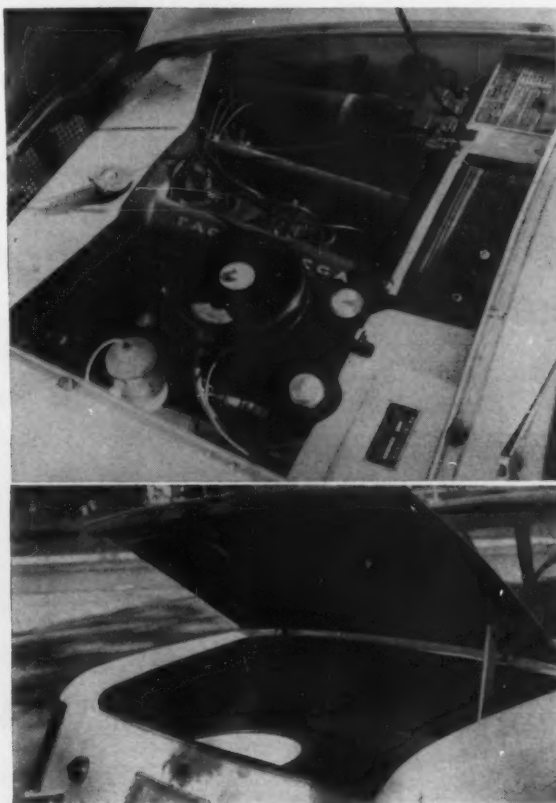
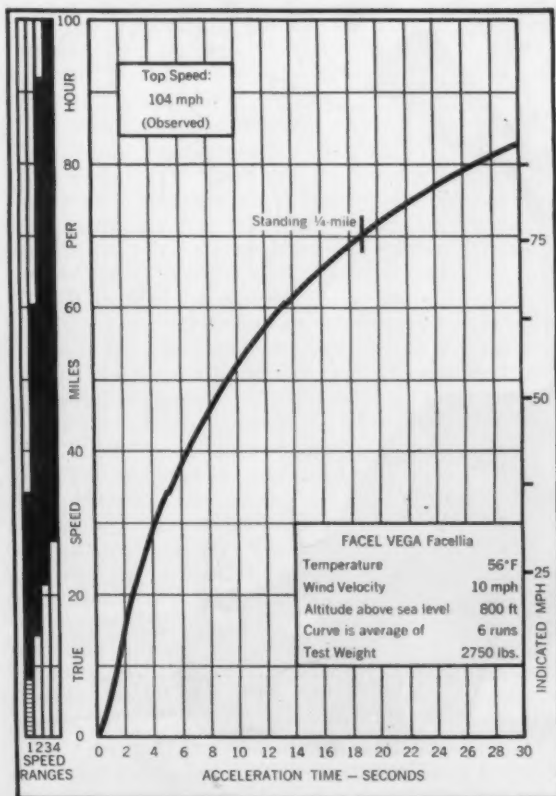




### FACEL VEGA Facellia

SCALE: EACH SQUARE ON DRAWING  
REPRESENTS ONE SQUARE FOOT

SPORTS CARS ILLUSTRATED  
T·E·FORNANDER



# Rod Test: RACKMOBILE

by Jim Fisher, Jr.

► The showroom wasn't very big, but I found it easily enough—above it was a huge and gaudy sign proclaiming "The '61 RACKMOBILE, FIRST PRODUCTION HOT ROD! COMES COMPLETELY EQUIPPED! SEE IT HERE!"

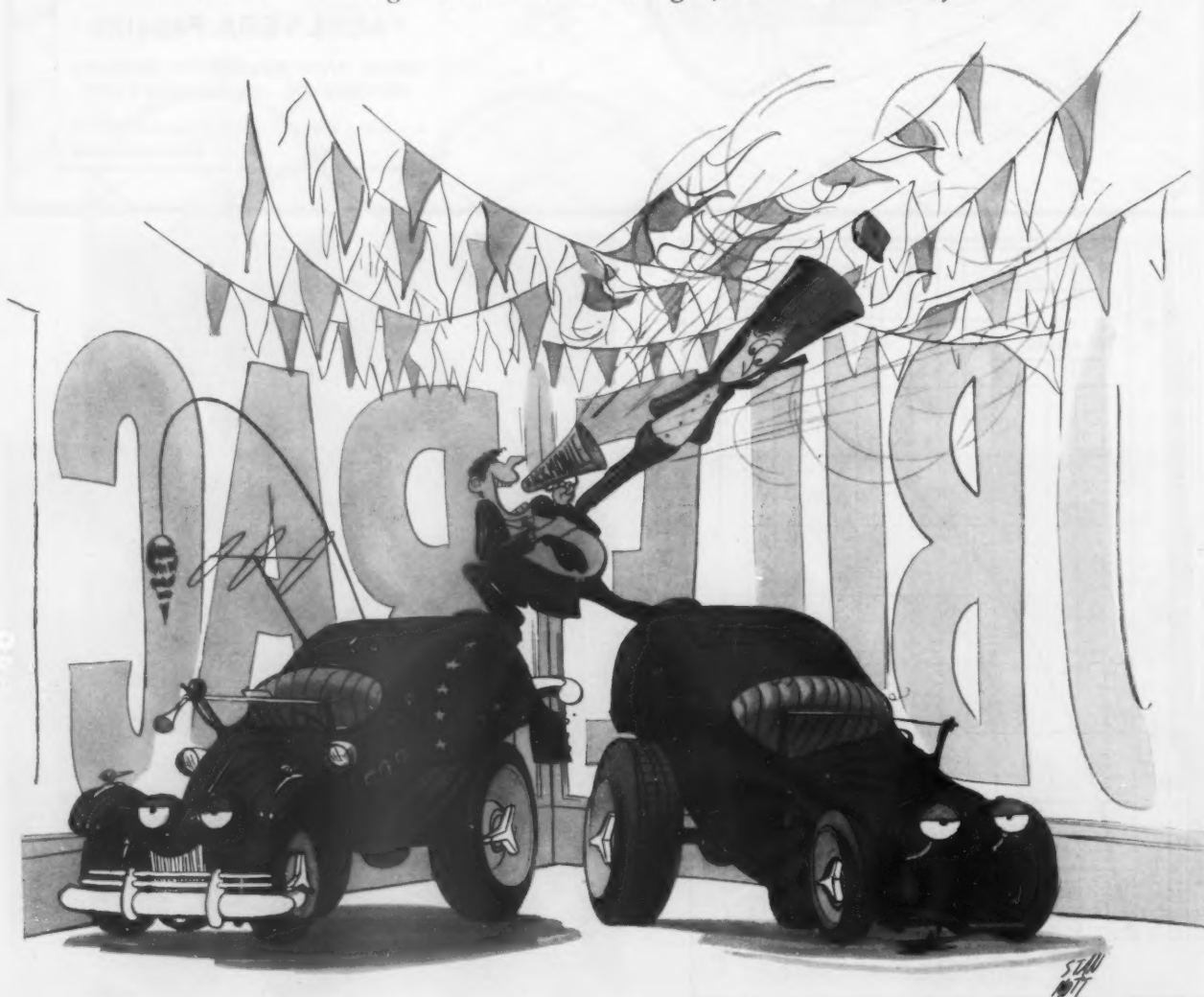
I steeled myself, opened the door a crack, and peered cautiously in. The front window had been so covered with advertisements that the cars within could not be seen, but I could see them now, and was about to slam the door and leave when a short, chubby man with a dead cigar and a rumpled dark business suit appeared from nowhere. He thoroughly shook my hand and practically yanked me into the showroom.

"Hello," I said warily. "I represent—"

"You don't have to tell me, son," he boomed, and the cigar bobbed briskly up and down. "You represent the American public which has so long awaited the unveiling of this revolutionary car—the first production hot rod to come completely equipped, springs torched and all. How's your credit?"

I was determined to get it across this time. "I represent—"

*"You don't have to tell me, son," he boomed. "You represent the American public which has so long awaited the unveiling of this revolutionary car."*





"Fine, that'll do — we can arrange easy payments for you. Which Rackmobile do you prefer — the Standard or the Deluxe? Well, we'll take a look at both of them and you can make your decision. Remember — You Can't Go Rong With Rackmobile — heh, heh! Perhaps you've heard our little jingle over the radio?"

"No," I said, "but I just want to—"

"Mechanically, the two cars are identical. The exteriors, however, represent two delightfully different extremes. The Rackmobile Standard, which you see before you, has every chrome ornament known to man."

"So I see," I said. "But what is that ten-foot antenna for?"

"Nothing. It just exists for style, and, of course, to hold up the raccoon tail. Notice that both models come with everything properly labeled — 'Engine Room' painted on the hood, 'Body Storage' painted on the trunk — think of all the work we save you! And, of course, you'll want your Rackmobile individualized, so for a very modest fee we'll have one of our artists prepare a monogram to your satisfaction. Do you want your girl friend's name painted on it somewhere?"

"No," I said. "I just want to—"

"Playing the field, eh? Heh, heh!" He poked me in the ribs. "You devil, you. Come over and look at our Deluxe model — our pride and joy, so to speak. Notice that all the chrome of the Standard model is first installed and then ripped off, crudely leaded in and painted over in gray primer. It makes a nice contrast to the candy-apple red, don't you think? Look at the beautiful jagged hole where the ornate grill of the Standard model has been ripped out. Don't lean against that fender, please — it's cleverly fashioned out of tin to reduce weight. You'll want to take a test drive while my assistant draws up the papers. Here, climb in the driver's seat of the Deluxe. You'll notice that the door handle of the Deluxe has been ripped out and leaded in, but it hardly ever works on the Standard anyway. Luckily, this is a convertible, and you can climb right over the door."

"What happens when the top is up?"

"The top won't go up. But don't worry! The upholstery is covered with waterproof plastic."

"Oh," I said, not very reassured. I climbed in the driver's seat and he hopped in beside me.

I stared at the dashboard, which looked like the control panel of a large airplane. "What do all these knobs do?"

"Well, this, this, and this are cigarette lighters. This row is ashtrays. This set of knobs controls the radio and its twenty-watt amplifier. Notice the push-button muffler selection. 'A' is quiet, for when you see a cop. 'B' is called 'Atomic Machine-Gun' and 'C' is called 'Good Morning, Judge.'"

"What does this one do?"

"That one sets up an almost unbearable high whine closely resembling the sound of a 707 at full throttle. People will think you have a turbine engine. The one next to it sets off firecrackers to resemble backfires. Don't touch that! That's the Cop-Discourager Button."

"What?"

"Yes, it turns on transmitters to jam police and radar frequencies. Then it dumps oil on the road behind you. Then it automatically slides back a panel on the trunk and sets off a hundred and fifty flashbulbs simultaneously, right in the face of any pursuer. If that doesn't work, we guarantee to pay the first traffic ticket up to a hundred bucks."

"Very kind of you. I see this car has floor shift. Is it four-speed synchromesh?"

"No, it's three speeds and no synchromesh at all. That way it makes a nice hairy grinding sound every time you shift gears."

"I dread to ask—what about horns?"

"You guessed it—that's what the keyboard is for. A full two octaves. When you're behind a slow driver you can play 'I'm



Walking Behind You.' When you get caught behind a funeral procession you can play Beethoven's Ninth, or Chopin's Funeral March, or *Death and Transfiguration*. You know, something appropriate for every occasion. In our price we include ten lessons with a competent teacher. Hey! Come back!"

"I don't think our magazine would be interested in this," I said.

"Your magazine?"

I told him I was from SCI and his brows furrowed darkly. "A sports car mag?" He made it sound like a protection racket. Heads popped out of every doorway at the mention of the words "sports car." I backed nervously towards the door.

"Now, take it easy, boys, I didn't mean any harm, I just wanted to arrange for a road test for your car HELP!"

I just made it to the door and slammed it in their faces, and by the time they got it open I'd reached my MG. —JF



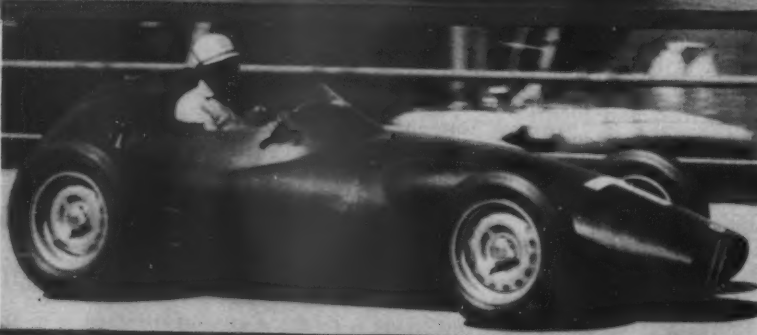
# BRITISH RACING MOTOR



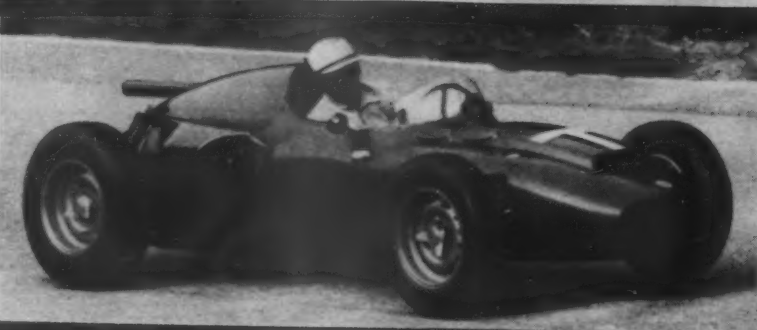
'55



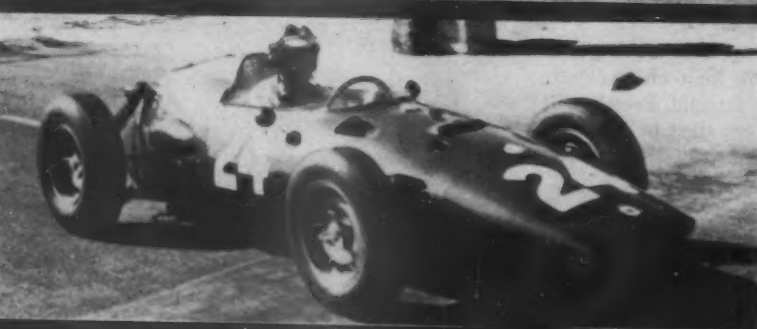
'56



'58



'59



'60



'61

► British racing car manufacturers can be divided into two classes: those who make the whole car, including the engine, and those who rely on Coventry Climax for their motive power. However well this latter unit performs — which is exceedingly well — considerably more *panache* attaches to a design which is 100 percent home-bred.

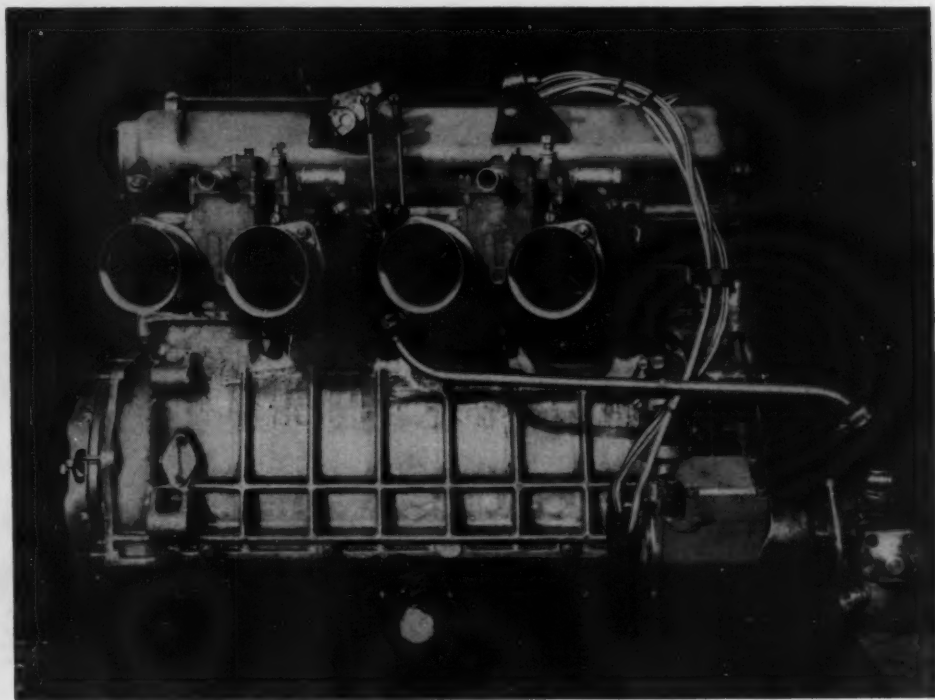
During 1960 the leading car in this category was the B.R.M. which, despite its lack of success in the *Grandes Epreuves*, is the most powerful of the British 2½-liter power units.

In basic layout the B.R.M. engine is fairly conventional, with four cylinders, twin overhead camshafts and carburetors, but closer examination reveals several unusual features. It was originally designed by Stuart Tresilian in 1953 (for Connaught, who found it too expensive) and first raced in September, 1955, much of the delay being due to the fact that the original B.R.M. Trust was disbanded at this time, after which the firm was acquired by the Owen Organisation. With this change began the process of installing equipment which now allows B.R.M. to make most of the non-proprietary parts both of the engine and of the rest of the car.

#### DESIGN PHILOSOPHY

The chief reason for designing a four-cylinder engine to the then-new 2½-liter Formula 1 was to cut down on the costs and complexity experienced with the earlier supercharged V16 unit. In Peter Berthon's words, "It's not so much a question of what you make, but how fast you can develop it." Other aims were to make a light engine with good torque and adequate breathing, to which end enormous intake valves and ports were specified. A single-cylinder test unit was built and developed while castings for the full-scale engine were being made, and experience with this showed that it would be necessary to use screwed-in cylinder liners to maintain an adequate fire joint—a practice which is still followed, and which further relates this engine to the similarly-proportioned Ferrari 553 Squalo unit. Single-cylinder trials were also given the four-valve combustion chamber that was a feature of Tresilian's first design, but this was discarded for reasons of poor air flow.

MARCH



Engine as revised for rear mounting has cog-belt-driven magnetos, at right, and completely new throttle linkage.

With a bore of 4.05 inches and a stroke of 2.95 inches the B.R.M. is the most oversquare G.P. engine currently racing, and at 52.8 square inches it has a greater piston area than any other four-cylinder 2½-liter unit. (some others: Climax, 43.0; Scarab, 44.1; Vanwall, 44.8; Ferrari 553, 48.8) One of the reasons for adopting a stroke/bore ratio of 0.73 was to permit the use of high rpm, but from the start difficulty was experienced with the large — and consequently heavy — intake valves. Various methods of construction were tried in an attempt to reduce the weight of the valves without introducing distortion and breakage, and eventually the trouble was overcome by welding. Difficulty was also experienced with the hairpin-type valve springs, and a recurrence of valve spring failure toward the end of 1960 suggests that this problem was never really solved. In 1958 a cylinder head incorporating desmodromic valve gear was made, but as no power increase resulted from its use, and since valve spring troubles seemed to be at an end then, it was not developed. (Continued on page 42)

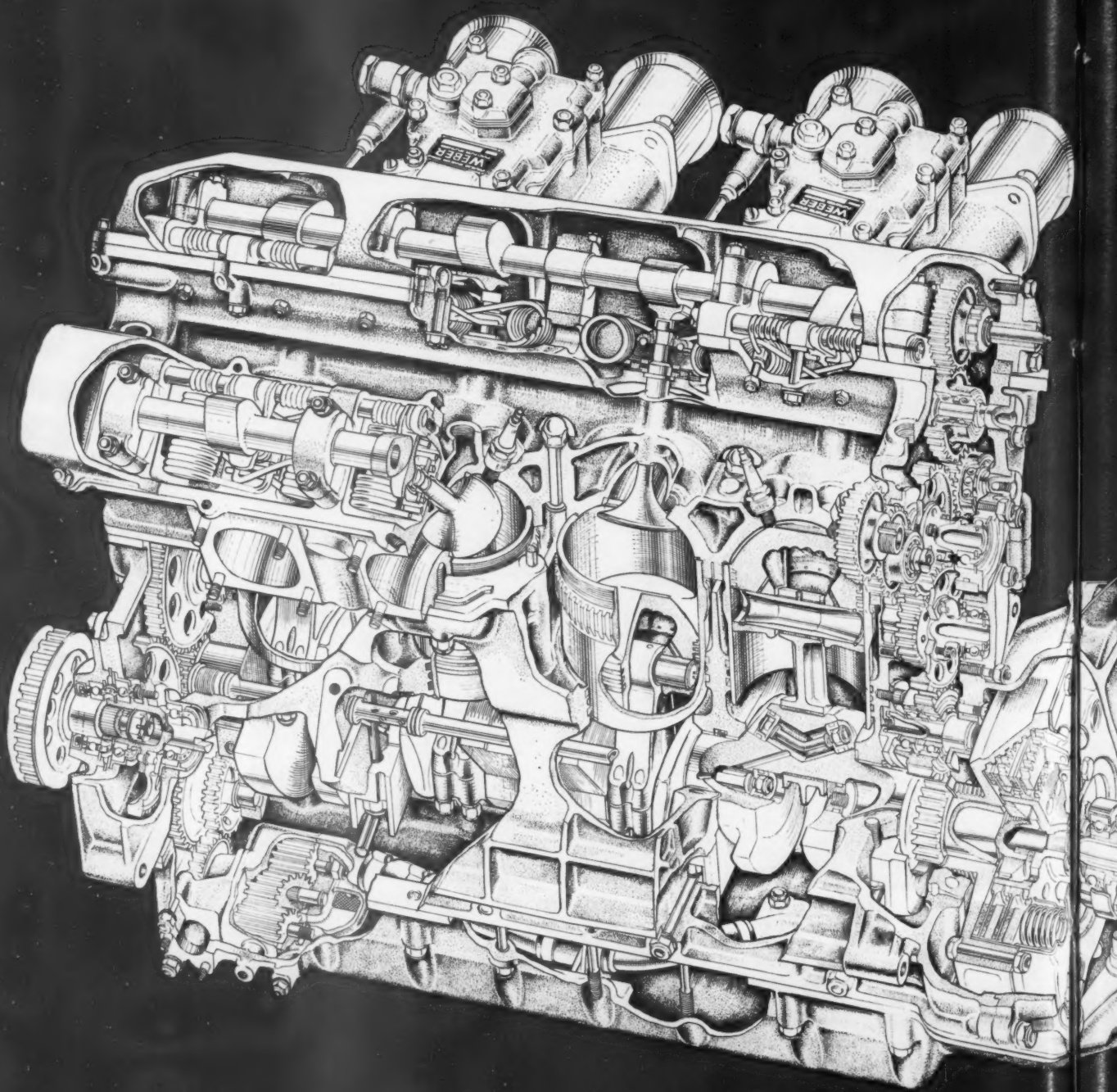
***Handsome to look  
at, cleverly  
designed and  
beautifully made,  
the B.R.M. engine  
is unique in the  
annals of the  
last Grand Prix  
Formula. It was  
active for six  
of the Formula's  
seven years, as  
competitive at  
the end as at the  
beginning, and  
has served notice  
it may still be  
significant in  
the new Formula.***

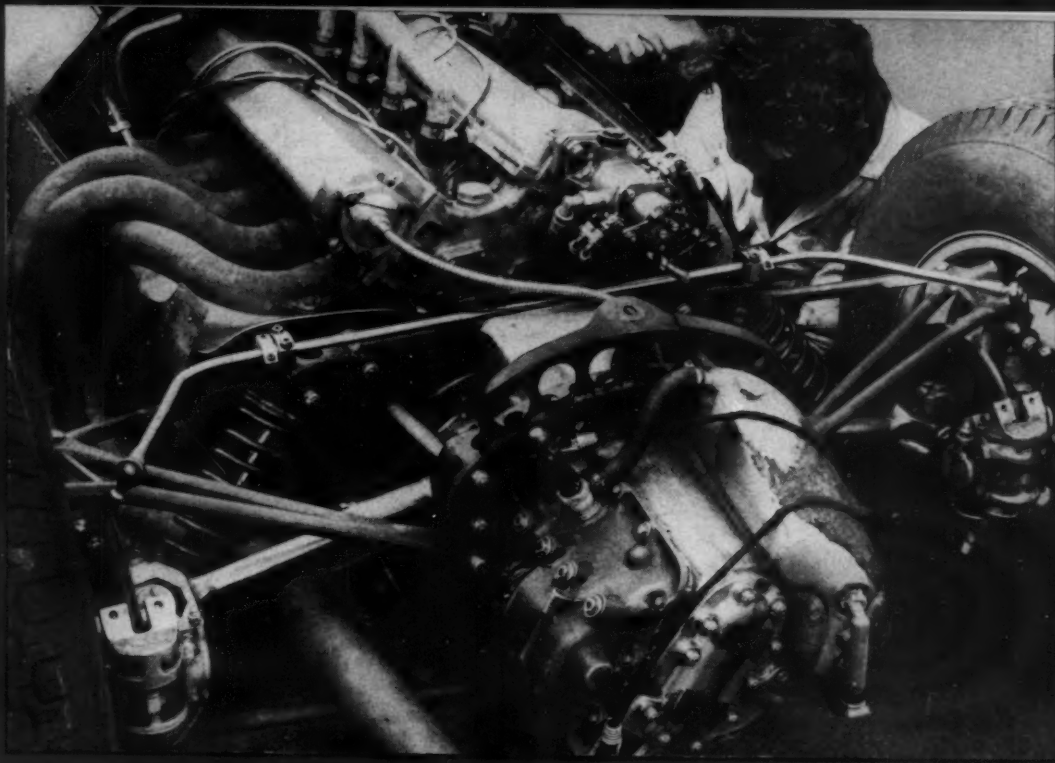
***by David Phipps***



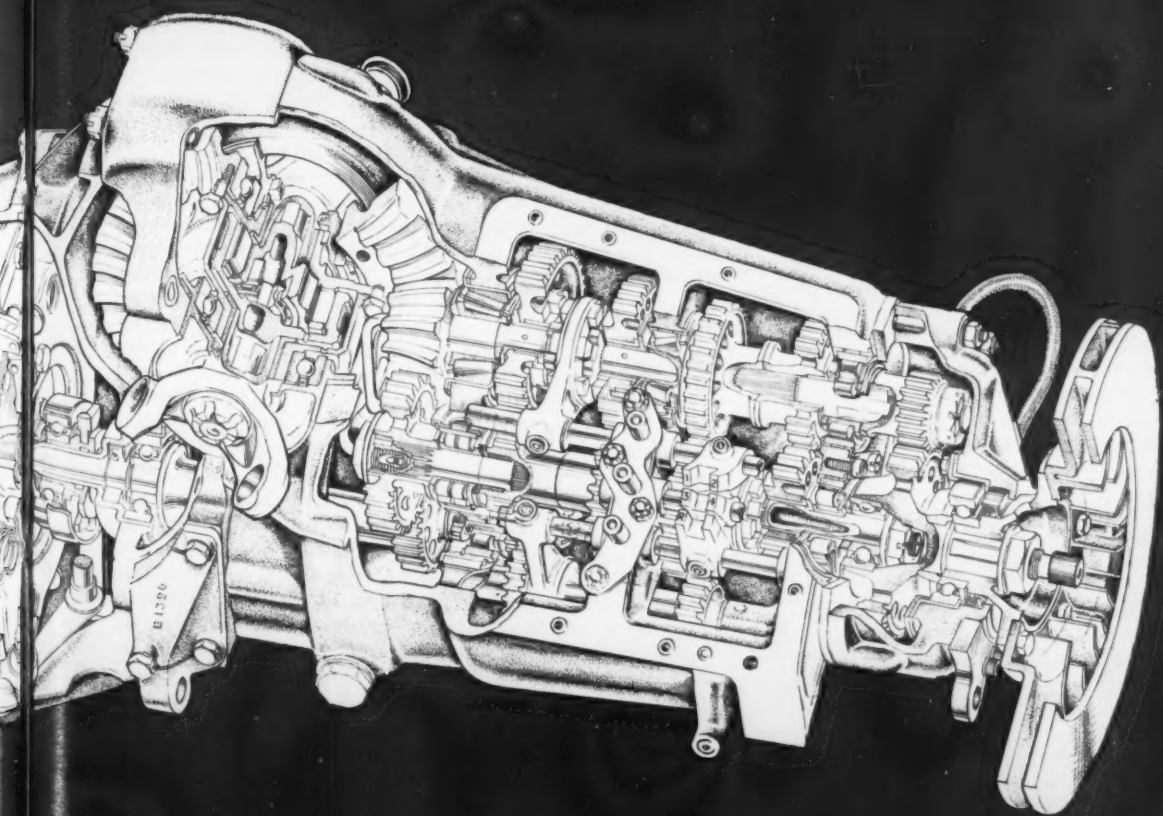
Fascinating both in design and execution, the B.R.M. engine and gearbox

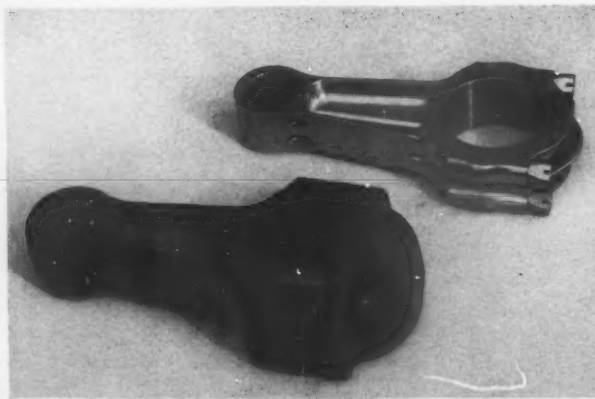
span the whole history of the late 2 1/2 liter Formula 1.





With an eye to the '61 Formula', R.R.M. is experimenting with fuel injection, overhead disc brakes and new, low rear suspension.





From its rough forging to the finished unit, the B.R.M.'s aluminum connecting rod is a hefty item. Machined from solid forgings, the rods incorporate four studs to retain the big end cap at high revs. The piston, at right, is also made of light material and has a floating wrist pin retained by circlips. Bronze is used for the little-end bearings. With three rings per piston, the bottom one's an oil ring. Forgings replace cast pistons.



#### EXPERIMENTS AND CHANGES

The original design featured a four-bearing crankshaft, with no center main bearing. Counterbalance weights were located at points of maximum load, with the bearings at the points of lightest loading. A massive bob-weight was used in place of the center main bearing, the elimination of which also helped to reduce friction losses. During 1958 a five-bearing crankshaft was tried, but no improvement resulted and a reversion was made to the four-bearing crank in 1959.

The B.R.M. engine was designed to use fuel injection, but after tests with S.U. equipment a change was made to Weber carburetors. Despite further prolonged tests with injection, the 58 DC03 Webers were still found to be superior.

Over the years there have been numerous detail changes, concerned mainly with cooling and oil circulation and with moving the engine to the rear, but in basic layout the engine has changed little. The chief change required for the rear-engined car was the introduction of belt-drive for the small Lucas magnetos. Previously bolted at the front of the engine, the magnetos are now mounted alongside the crankcase, facing rearward, and driven from the front accessory gear train by means of toothed belts manufactured by the U.S. Rubber Co. These belts, made of steel-reinforced synthetic rubber, are designed to absorb engine vibration; the right-hand one also serves a dual purpose by driving the fuel pump.

#### MECHANICAL DETAILS

A one-piece aluminum alloy casting—made by High Duty Alloys Ltd. and machined at B.R.M.'s shop at Bourne—constitutes the crankcase and block. The sump, a separate magnesium casting, carries the scavenge pump for the lubrication system, which is driven by drop gears from the nose of the crankshaft. The water pump is also driven off the front end of the crankshaft, as is the main oil pressure pump, which is externally mounted under the exhaust ports. The timing gear train is situated at the rear of the engine and is driven off the crankshaft behind the rear main bearing.

The partially-counterbalanced, four-main-bearing crank-

shaft is of Nitraloy, and all bearings are Vandervell lead-indium. The diameter of the front and intermediate main bearings is 2.375 inches, while the rear main bearing is .125 inch larger at 2.5 inches. For comparison, the FPF Climax main is 2.5 inches, the Vanwall 2.75, and the Scarab 2.625 inches. The pistons, formerly cast, are now forged in RR 59—an aluminum alloy. The connecting rods are machined from solid forgings and incorporate four studs for retaining the big end cap. Floating wrist pins, retained by circlips, are used in conjunction with bronze-bushed little ends. Three piston rings are used, the bottom one being a dual oil scraper.

The cylinder head is cast in RR 53 aluminum alloy and features hemispherical combustion chambers with inserted valve seats and twin ignition (with 10 mm spark plugs). Each camshaft runs in five white-metal bearings and operates the valves through massive fingers. The intake valves, made of a special steel alloy suitable for welding, are still 2.4 inches in diameter; the exhaust valves, of KE965 steel, are 2 inches across.

On the question of gas flow B.R.M. consulted cylinder-head expert Harry Weslake, and the current port shapes are largely the result of his work. It was necessary to design an entirely new exhaust system for the rear-engined car, the resulting involved shape being necessary to obtain equal-length branch pipes. Tail pipe length is adjusted to shift the power curve to suit various types of circuit, being longest for Monaco and shortest for Rheims.

#### TROUBLESOME POWER

The compression ratio of the B.R.M. engine is now 10 1/4 to one (in the days of alcohol-based fuels it was 11 to one) and running on Avgas or 100/130 octane fuel, the rear-engined car has a fuel consumption of approximately 10 mpg at racing speeds. Maximum power output is 275 bhp at 7500 rpm, and maximum torque is 210 lb-ft at 6100 rpm. Complete with carburetors and magnetos the engine weighs 270 pounds, which means that it produces approximately 1 bhp per pound, and 110 bhp per liter. Specific fuel consumption ranges from .43 to .55 pints/bhp/hour, which is fractionally better than the 2 1/2-liter Coventry-Climax.

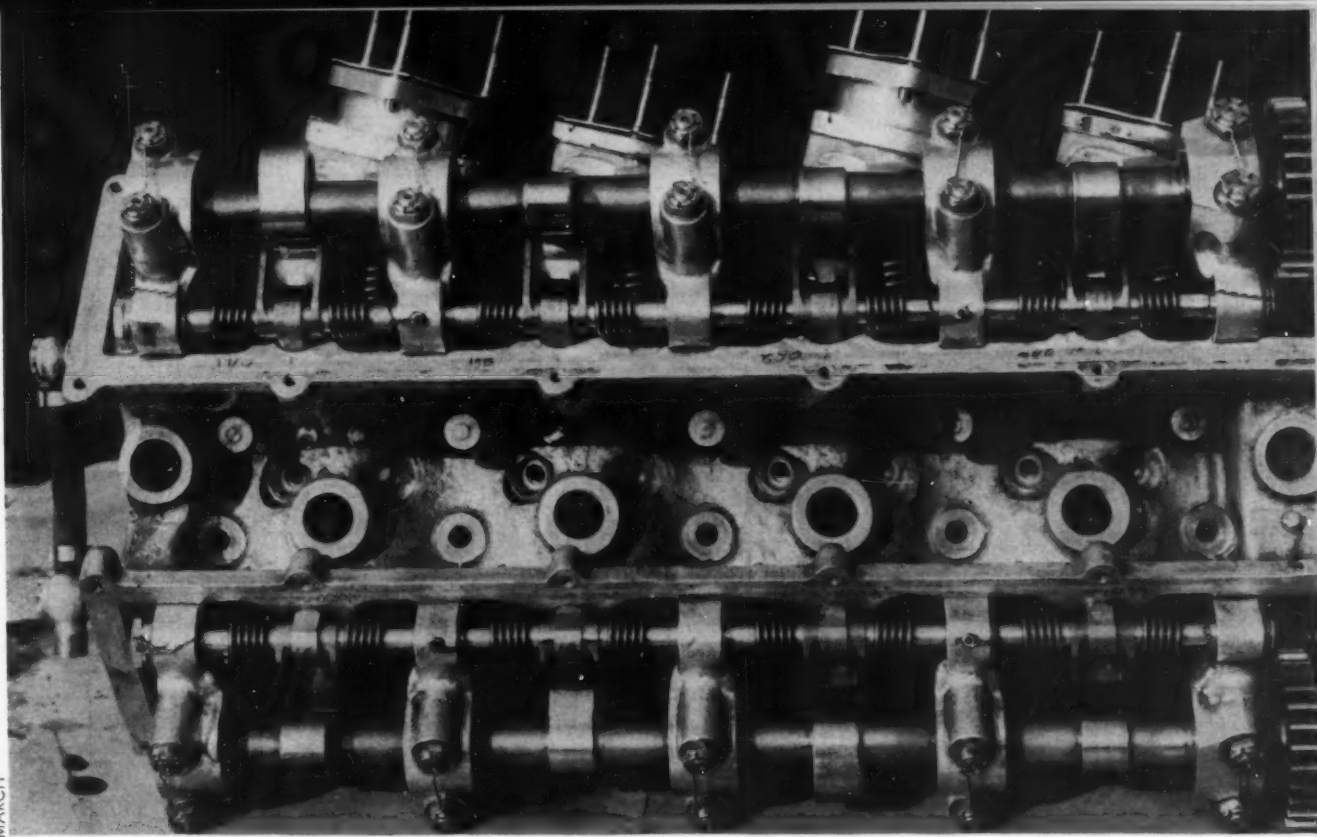
Lubrication and cooling arrangements have received a great deal of attention, but have never been entirely satisfactory. On the rear-engined car the capacity of the water pump has been increased, due to the distances over which the water has to travel, but this has not completely solved the problem. The source of the trouble would seem to lie within the engine itself, localized overheating often causing power losses which have contributed in large part to the car's reputation of "flattering only to deceive."

In the same way that the extreme diameter of the intake valves has led to trouble both with the valves themselves and with valve springs, so the size of the pistons may have contributed to the overheating of surrounding components, and of the oil and water which cool them. Unfortunately, with the 2 1/2-liter Formula coming to its end, this engine may never be developed to realize its true potential. Until B.R.M.'s projected new 1 1/2-liter V8 is ready, however, this engine may have to be reduced in displacement to serve in its stead, so there may yet be development life in it. Either for this reason, or for the new Intercontinental Formula, it's perhaps significant that a Lucas-injected version of this engine powered the 1961 B.R.M. chassis in its first late-1960 competitions.

#### REAR-ENGINE IMPETUS

It might have taken some time for B.R.M. to move the engine to the back, had it not been for an amateur engineer named Stirling Moss. Late in 1958 he suggested to Rob Walker that a B.R.M. engine in a Cooper might be an effective combination. So was it done by Alf Francis, using





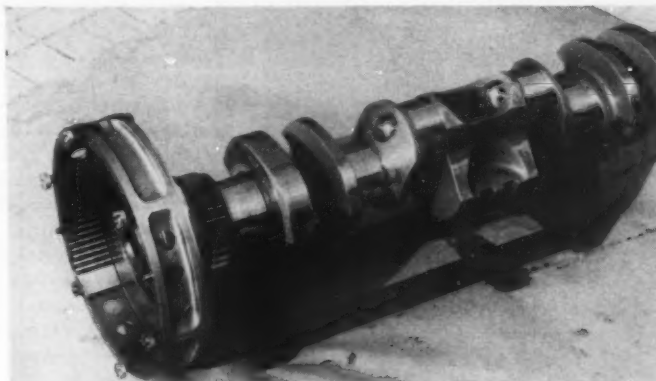
The B.R.M.'s aluminum alloy cylinder head has two spark plugs per cylinder, canted intake manifolds and five bearings for each of the cams.

the then-new five-speed Colotti gearbox, and a 1958 five-bearing engine. The car made two unsuccessful appearances in 1959, then was sold to B.R.M., from whom the engine had only been borrowed in the first place. Peter Berthon was already at work on the drawings for his own version in May of 1959, and by September the first prototype was on test before the Italian G.P. at Monza.

Production of a rear-engined B.R.M. luckily did not require the design of a new gearbox, "luckily" because gearboxes are expensive and because the four-speed B.R.M. box has always been one of the best units in the car. Placed behind the rear-wheel centerline, all it needed was a new front-end cover casting to mate with the engine's bell housing. The drive is transmitted through a hydraulically-operated Borg and Beck two-plate  $7\frac{1}{2}$ -inch clutch, and is taken up to the gearbox input shaft through a pair of transfer gears—originally intended to lower the propeller shaft line. The input shaft is placed below and to the left of the output shaft, which is directly in line with the pinion of the spiral-bevel final drive. A ZF limited-slip differential is fitted.

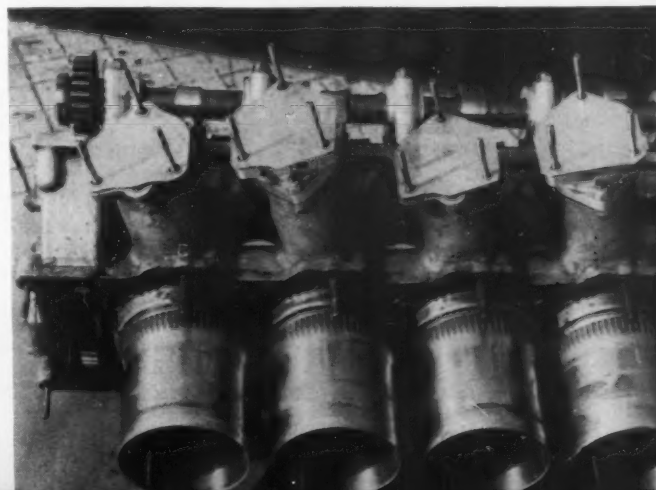
Ostensibly to save space, the dog-clutch selection of first and second gears is made on the output shaft, while third and fourth gears are selected on the input shaft. The box is of the dry-sump type, with its own scavenge and pressure pumps. Originally it used the engine oil supply, but in the 1961 design it carries its own oil tank slung on its right side with bungee cords. Another 1961 change is the elimination of the single disc brake on the back of the box, geared down to  $1/3$  the output shaft speed. With two very small Dunlop disc assemblies now mounted on the hubs, B.R.M. says the overall weight has been reduced—not hard to understand when the size of the old disc and gearing is observed.

Fascinating both in design and execution, the B.R.M. engine and gearbox span the whole history of the late  $2\frac{1}{2}$ -liter Formula 1. Indeed, they may both play a part as two exciting new racing Formulas take shape this year. —DP



A massive counterweight is the focal point of the B.R.M.'s crankshaft which has four wide main bearings. Five bearings were tried and rejected.

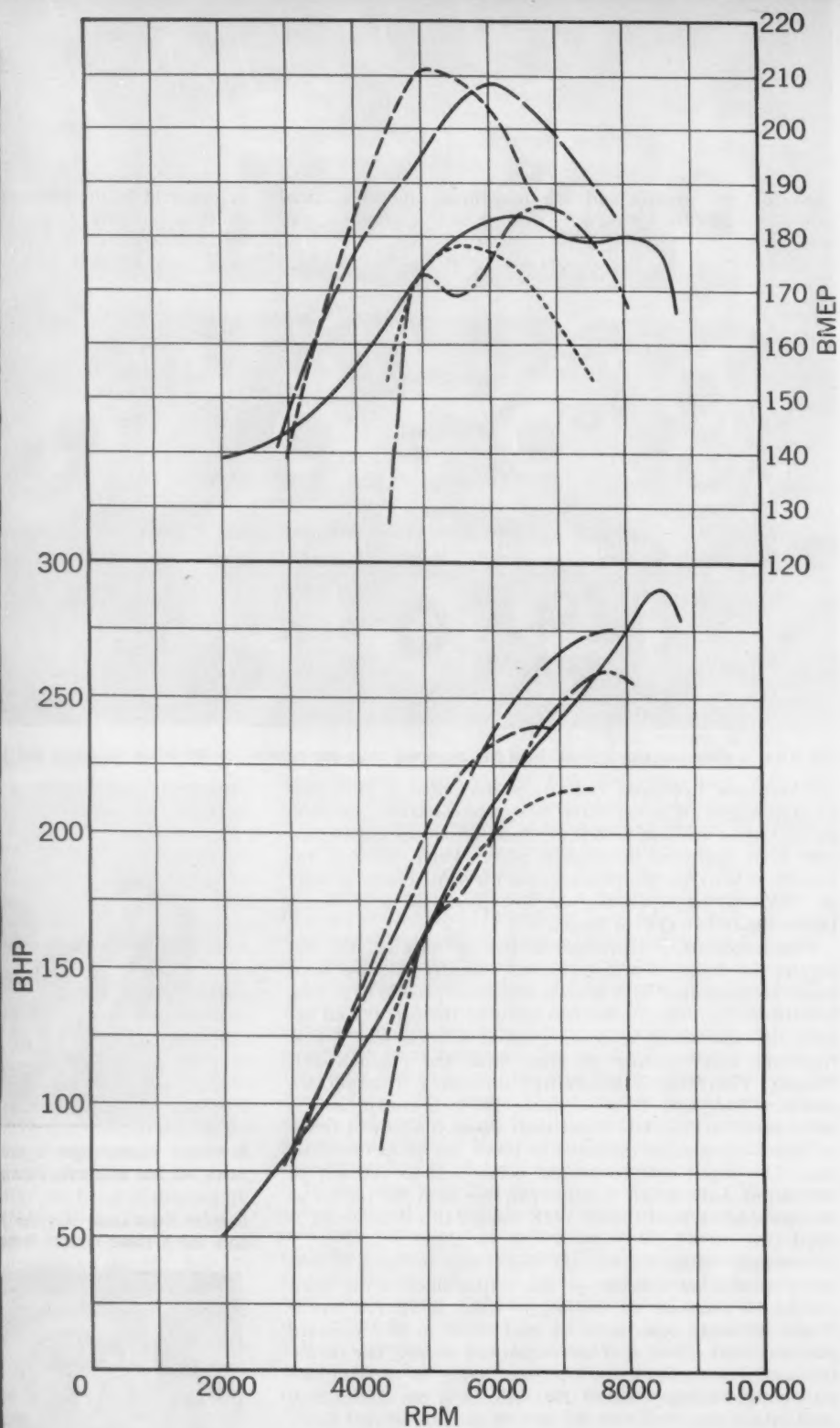
Cylinder liners screw into the head for a good seal. With a 4.05-inch bore and a stroke of 2.95 inches, it's the most oversquare G.P. engine.



# FOOTNOTE: WHENCE COME THE HORSES?

by Karl Ludvigsen

There's still much black art in designing racing engines, but now and then it seems possible to persuade order to emerge from chaos. That's the aim of this unique graph of Grand Prix engine performance.



M196 \_\_\_\_\_  
 B.R.M. \_\_\_\_\_  
 CLIMAX FPF \_\_\_\_\_  
 CLIMAX V8 \_\_\_\_\_  
 SCARAB \_\_\_\_\_

► Many long-time SCI readers will recall the three-part series on high-performance engine design that began in the July, 1957 issue and was completed in September. One of the keys to that presentation was a study of the nominal gas speed in the intake port, in Part I, complete with a formula for determining that speed. It was stated there that "gas speeds should not greatly exceed 150 feet per second for best results and the maximum allowable speed should be 200 fps." Examples were shown which illustrated this.

All was well with this approach until Harry Mundy expounded on his Grand Prix Coventry Climax engine design in the March, 1960 SCI. Harry said, "If there is an outstanding feature on this Climax engine it is in respect of the intake port sizes when compared with contemporary racing engines. The velocities in both the intake and exhaust ports . . . are rather high [both well over 200 fps at peak power]. The theory behind this is that power is obtained by keeping up the velocity of the incoming charge in a long port behind the inlet valve so that the mixture is piled up at the time of opening." Conflicting completely as it does with the 200 fps limit, this thought caused only confusion among our readers. What's the answer?

Only recently has Chrysler published the results of some of its research leading up to the various "ram-tuned" intake

range to maintain inertia ram. As Harry Mundy puts it, more technically, "This suggests an optimum depression in the cylinder at which the maximum weight of air is set in motion at the maximum velocity compatible with streamline flow." In other words, the most delicate kind of compromise seems necessary.

We're given a wonderful chance to survey current practice in this field by the accompanying material. With the B.R.M. data on the preceding six pages a power curve was kindly supplied. Hitherto unpublished, it's plotted along with two other never-seen curves: those for the 1955 Mercedes-Benz M196 and for our own 1960 fuel-injected Scarab four. Curves for the Climax V8 and FPF four round out this unique comparison of engines designed to the 2½-liter Grand Prix Formula. Curves of bmep are also presented, showing the relative breathing and burning efficiencies of the engines. These curves, of course, are identical in shape to the respective torque curves of these units.

These curves alone make a fascinating study, showing just where one engine has a power or torque margin over another, but for our immediate purposes they show where the power and bmep (or torque) peaks lie. These peaking speeds are recorded on the accompanying table, and the nominal gas speed at each peak is calculated, for both ends of the intake port. Let's study these speeds.

There's a stunning consistency in the gas speeds at the valve for the bmep and power peaks. The original maximum of 200 fps holds superbly for peak bmep, which makes excellent sense. After all, peak bmep should be reached at the point of most efficient breathing. The values for all but the M196 range from 186 to 204 fps, and 195 fps suggests itself as a remarkably consistent gas velocity for peak torque. What about the M196 with only 141 fps at peak bmep? True, but look at the bmep curve. There's a second slightly lower peak at 8100 rpm, which corresponds to 179 fps — very near our 185-205 range. That appears to be the "natural" bmep peak for this big-ported engine, which was given a big hump lower down by fuel injection, resonant ram tuning and drastic desmodromic valve timing. A similar double peak appears in the bmep curve for the underdeveloped Climax V8, showing the beginning of efforts to hoist the lower end of the curve.

In the three British engines, the ports have been narrowed at the manifold face to provide a "venturi" effect, building up gas velocities some distance upstream from the valve. In this case the range is 291 to 319 fps, suggesting a general figure of 300 fps at that point. This, among countless other things, probably helps achieve the very high bmep realized by the Climax and B.R.M. fours, by inertia ramming.

At peak power speeds we again find a striking consistency, and where variations are noted they are readily and reasonably explainable. Both the Climax FPF and the Scarab show about 260 fps at peak power; this is the value that seems to be characteristic. The Mercedes-Benz is again a dramatic exception, as mentioned above. In the cases of the Climax V8 and B.R.M., it seems that the engines were intended to peak at 9350 and 8550 rpm respectively, but that it was never possible to develop them that far, either for financial reasons (Climax) or structural reasons (B.R.M.).

In the process of compiling this material we have checked many other engines, from the Offenhauser four to the Maserati V12, and the 195 and 260 fps gas speeds keep turning up with astonishing regularity. Obviously they represent but one tiny aspect of total engine design; witness the Scarab, which fits the gas speed pattern exactly but still doesn't inhale and consume as it should. These speeds seem to indicate *where* you can expect bmep and power with a given intake port design, not *how much* you can expect. *Where* alone would be far more than we have ever been able to predict before.

—KEL

	gas speed at valve	gas speed at manifold
<b>B.R.M. 1960</b> bmep: 6100 rpm power: 7500 rpm 8550 rpm	2.10 inch 186 fps 229 fps 260 fps	1.60 inch 319 fps 392 fps
<b>CLIMAX FPF 1959-60</b> bmep: 5200 rpm power: 6750 rpm 6600 rpm	1.85 inch 204 fps 265 fps 260 fps	1.50 inch 310 fps 403 fps
<b>CLIMAX V8; 65% methanol</b> bmep: 6800 rpm power: 7900 rpm 9350 rpm	1.55 inch 190 fps 221 fps 260 fps	1.25 inch 291 fps 338 fps
<b>MERCEDES M196 1955; methanol</b> bmep: 6400 rpm second peak: 8100 rpm power: 8500 rpm 11,800 rpm	1.75 inch 141 fps 179 fps 187 fps 260 fps	1.88 inch 122 fps 155 fps 162 fps
<b>SCARAB 1960; injection</b> bmep: 5600 rpm power: 7500 rpm 7450 rpm	1.94 inch 196 fps 262 fps 260 fps	1.94 inch 196 fps 262 fps

manifolds now offered. These studies of intake pipe pressures revealed that two distinct phenomena were at work. One is the type discussed under "Intake Tuning" in the above-mentioned series: the familiar reverberations of pressure pulses in the pipe, very sensitive to exact pipe length, referred to by Chrysler as "resonant ram." But much more important and fundamental, Chrysler found, was the effect it called "inertia ram," the real basis for the design of the production manifolds.

It almost seems too simple! Inertia ram, as its name implies, results from the inertia of the column of air speeding toward the intake valve from the carb or injector intake. This column of air possesses weight and speed, and will obviously tend to keep hurtling toward the valve and chamber whether the former is closed or not (remember that the gas flow at high engine speeds is for all practical purposes continuous). The weight of this column can be increased (hence its kinetic energy or "inertia") by lengthening the pipe (Chrysler's choice) or by increasing its diameter. But since the kinetic energy of a mass in motion increases as the *square* of its speed, much more can be gained by a judicious increase in the gas velocity.

Clearly the key word above is "judicious." All the dangers of excessively high gas speeds — undesirable wall friction and pumping losses — still exist, but it's necessary to court danger in this area to get high velocities in certain parts of the



*Utterly lacking in nerves and driven to "tiger" by a compelling desire to win, Masten Gregory is the most under-rated driver in Grand Prix cars today.*

*by William F. Nolan*

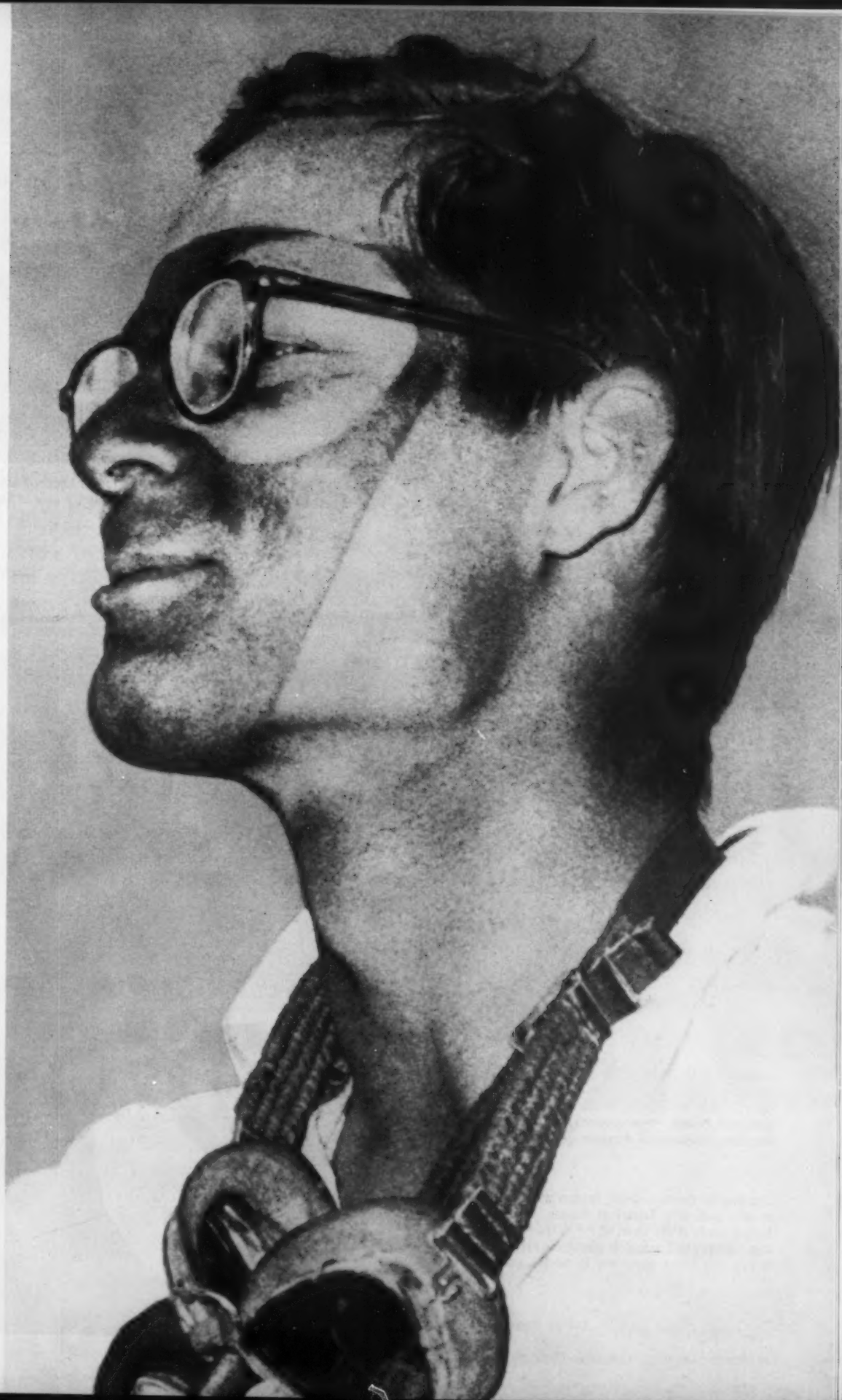
# DAREDEVIL WITH A SLOW DRAWL

Driving a savage, temperamental, bullet-quick racing machine at brutal speeds over the dangerous, deceptive road circuits of Europe requires, in addition to seasoned talent and keen competitive instincts, a full measure of raw courage. The willingness to "tiger" (as the British journalist Denis Jenkins so aptly terms it) is a vital ingredient in a complex recipe for victory. Certainly the great champions — Nuvolari, Caracciola, Ascari, Fangio — all possessed it. Genial, party-loving Mike Hawthorn often became a tiger when the chips were down — and who can forget the thrusting, thousand-mile dash of Stirling Moss in winning the 1955 Mille Miglia.

America, too, has her tigers: Le Mans winner Phil Hill, the energetic charger from California, dynamic newcomer Dan Gurney (also from the West Coast) and the affable, hard-driving Texas veteran Carroll Shelby. But it is generally agreed that the most aggressive American in Europe today is a slightly-built, bespectacled young man from the midwest, Kansas City's 28-year-old Masten Gregory.

On the high banking at Monza in 1958, driving an outclassed D-Jag against a field of saucer-bred Indianapolis machines, Gregory pushed his car to its absolute limit in a heroic if vain attempt to close with the leaders. On the Nurburgring, he became the first Jaguar driver ever to shatter the magic 10-minute mark; no other D-Type had ever been herded around that devil's circuit so fast. In the 1959 German Grand Prix, at Avus, he fought bravely for the lead with the full might of the Ferrari team in

*(Continued overleaf)*



*"We were slipstreaming each other on the banking about three to four inches apart—and doing maybe 180 in the bargain!"*



Unable to drive in the 1959 Sebring race, Gregory spectated. He took time from his picture taking (he's an avid photography enthusiast) to talk things over with Donald Healey and the late Harry Schell who, like Masten, once drove for Centro-Sud's team.

Clowning for the cameraman, Gregory waves from the driver's seat of a Ferrari at Nassau, 1956, while Stirling Moss, at the wheel of the Hillman, does likewise. Gregory quit school to pursue his keen interest in cars and hopes some day to be the champion.

DOLIN



McCABE

At the '60 British G.P., Gregory had a Centro-Sud Cooper-Maserati sidecars almost as often as frontward, in tremendous try only to finish 14th.



BURNSIDE



his small British Cooper on this superfast circuit in which the more powerful Italian cars were obviously very much at home. Such tigerish drives are typical of Gregory, who has been dubbed "foolhardy" almost as often as he has been called "courageous." Certainly few drivers of international stature have sustained five major crashes in two seasons of competition and lived to tell the story.

Yet he continues to "tiger" — seemingly not slowed by his narrow escapes, having achieved his latest success (at this writing) in the 1960 Cuban Grand Prix when he slammed a Porsche RSK around the turns in a hair-raising series of full-lock broadslides to score a splendid class first (and a third overall) for Team Camoradi. Over past seasons Gregory has won other impressive international victories in England, Portugal, Ireland, Germany, Argentina, the Bahamas and Belgium. As early as 1957, he was a Grand Prix regular on the Formula 1 circuits, driving a Maserati for the Centro-Sud organization and demonstrating his ability to "nurse" a slower car home by finishing every G.P. race he began that year.

As an official member of the Cooper factory team in 1959, he displayed, on more than one occasion, a marked talent for combining smoothness with speed — and *aficionados* still speak of his fabulous run in the '59 Aintree '200," when he brilliantly led the pack, Moss at his tailpipe, for 19 laps until his gearbox packed up — a not-uncommon Cooper occurrence with Stirling himself. Also, at the Dutch G.P. at Zandvoort, he outgunned Innes Ireland, Jean Behra and Phil Hill to capture a superb third overall, ahead of the entire Ferrari factory team. And, to cap the 1959 season, Gregory qualified just behind Moss and Brabham at the G.P. of Portugal, earning the first row on a starting grid which included Trintignant, Bonnier, Gurney, Hill, Shelby, McLaren, Brooks, Flockhart and Salvadori. In the race only Moss crossed the line ahead of him at the end of 62 sun-blistered laps, proving that when he is "on form" Masten Gregory is more than a match for any driver in the world.

However, Gregory's fine G.P. record has undoubtedly been over-shadowed by his five serious crashes in sports cars. In November of '57 he overturned a 4.7 Maserati at Caracas; in June of '58 he all but demolished a D-Jaguar at the Nurburgring; in July he wrote off a Lister-Jag at Silverstone, repeating this unhappy performance with the same *marque* again at Silverstone in May of '59 when his brakes failed — and in September of '59, his steering gone, he slammed into the bank at Goodwood during the Tourist Trophy (with a Tojeiro-Jag), breaking his left leg and shoulder.

In each case, witnesses claim Masten was exceedingly fortunate to have escaped with his life. Other "tigers" have not been as lucky. Ascari, Musso, Scott-Brown, Collins, Behra, Castellotti and Portago have all forfeited their lives in crashes no less serious than those survived by Gregory.

To deny that professional road racing in Europe is a dangerous sport is to

(Continued on page 72)



With John Edgar, one of the entrepreneurs who brought really hot cars to post-war American racing, Gregory examines details of Edgar-owned Ferrari.



## Saab 96 Sedan and 95 Station Wagon

► The two latest offerings from the Saab factory, the 96 Sedan and the 95 Station Wagon, are perfect examples of good basic designs that have received much thoughtful engineering over a long period of time.

While today's 96 Sedan is a kissin' cousin—at least externally—of the old 93 model road-tested in our September 1956 issue, its performance and general feel mark it, after a very few miles, as a new breed of Saab.

Biggest styling change in the sedan (the 95 wagon is the first of this type from Saab) is the wrap-around rear window, and redesigned rear deck which incorporates bigger and better tail lights. A second difference is small cowled vents just aft of the rear windows. These vents, when used in combination with the air intakes placed just under the windshield, provide an excellent system of draft-free ventilation. Still another functional result of the restyling is an increase in rear seat width and headroom.

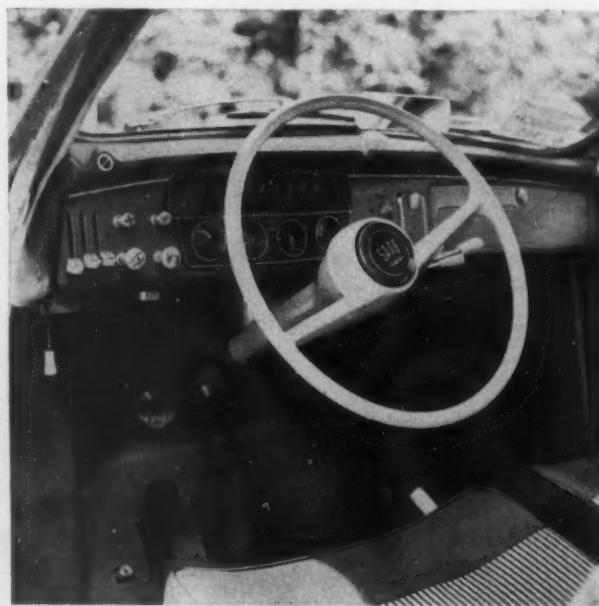
The increased performance of the 96 stems from a larger—93 cc, four bhp—version of the Saab three-cylinder two-stroke engine. First mentioned in our May 1960 issue (SCI Goes to Sweden), the new engine is a happy and logical extension of the original design.

Owners of older 93 models will notice the difference in performance after the first block or so. Even casual users of new and old Saabs will be able to detect the improvement for the new engine, while only slightly increasing top speed, has markedly improved acceleration. Flexibility is naturally better, and those drivers used to Saab freewheeling and two-stroke power can putter along at a walking pace in top gear. The increased torque makes the use of the older three-speed gearbox even more sensible than in its original fitting to the 93 Sedan. Gas-oil mileage of the new engine is no greater than that of the older powerplant, and under certain conditions—steady running at around 50 mph—it is slightly better.

The bigger engine retains traditional Saab smoothness and silence under load, and two-stroke roughness on the idle. From a personal standpoint we think that a Saab ticking over makes friendly noises—a less whimsical person might find it mildly objectionable, but never more than that. The increased power has improved the Saab without detracting from any of the car's long-standing good points.

What power increases can be extracted from and absorbed by the basic Saab design are wonderfully illustrated in the 93 model specially prepared for the 1960 Little Le Mans sedan race. SCI had an opportunity, while testing the wagon and sedan at Lime Rock, to examine and drive Dick Thompson's # 52, which was the highest-placed imported car—finishing second behind a V8 Lark. The tuned—about 70

bhp—engine was a combination of 750 GT practices and those evolved by Hank Rudkin with his Saab-powered Class H Bandini. The body had been gutted in the interests of weight saving—while the rear and side windows were in plastic for the same reason. One thing that struck the writer was just how normal it looked. The car, having simple



New Saab dashboard is both pleasant and functional. Chain is for radiator blind, while white nozzle on dash edge effectively unfogs side windows.

interior styling, just doesn't appear "nude" when stripped for racing. Suspension parts, steering linkage, body shell, wheels, and brake drums were all stock. An exception were the brake linings, which were of the cerametallic type. Needless to say, the performance was not stock either, with a quarter mile time some six seconds under that of the normal sedan.

Getting back to the world of everyday motoring: interior changes on the 96, aside from the bigger rear seat, center around a new instrument panel. Dominating this new grouping is a ribbon-type speedometer which worked well, but (again a personal preference) seemed like a roundabout way of conveying such vital information to the driver. Much better are the four round dials set under the speedometer

PHOTOGRAPHY: DOLIN



In Saab's unit body, the bellypan is finished as well as the top; it's corrugated for stiffness, free of obstructions and fastened securely.

that house temperature gauge, fuel gauge, ammeter and clock. Heater and lighting controls have all been grouped to the left of the instrument cluster, along with the manual choke.

It's not surprising—Sweden has an eight-month-long winter—that the Saab's arrangements for interior warmth are beyond compare. Another new feature besides the cowled extractor vents are two small nozzles situated to the left and right on the upper edges of the padded dash. Their function is to direct warm air onto the side windows. To the left of the ignition lock is the combined windshield washer and wiper control. The washer, by the way, is a standard fitting, as is the superlative heater. The toggle-topped starter (the key starter from the 750GT would be nicer) under the center of the dashboard has been retained along with the centrally-located ash tray, while the glove compartment has been increased in size. A lock that keeps an unoccupied passenger seat from flipping forward under hard braking is also a new addition.

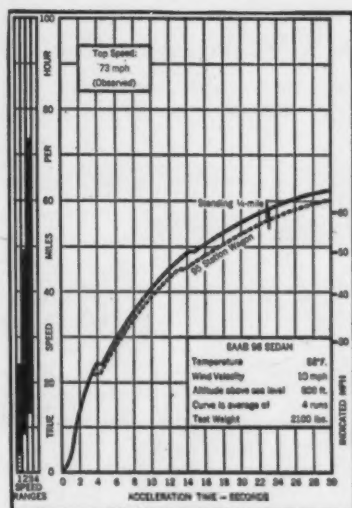
These, then, are the major differences between the old 93 Sedan and the 96 model. Saabophiles need have no fears. The new car is still a Saab, which means that it is a long-legged vehicle that can cruise all day in the upper 60s while keeping its crew dry, warm and comfortable. Still retained—and intensified—is the Saab's ability to be happy on long stretches of turnpike which quite often make lesser little cars buzz and zig-zag from one puff of wind to the next. The

## ROAD TEST

### SAAB 96 SEDAN (Figures for 95 Station Wagon in brackets)

Price as tested: \$1895 (\$2265)

Importer: Saab Motors, Inc.  
405 Park Avenue  
New York 21, N. Y.



#### ENGINE:

Displacement ..... 51.3 cu in. 841 cc  
Dimensions: Three cyl, 2.76 in bore, 2.87 in stroke  
Valve gear ..... None, engine is two-stroke  
Compression ratio ..... 7.3 to one  
Power (SAE) ..... 42 bhp @ 5000 rpm  
Torque ..... 59 lb-ft @ 3000 rpm  
Usable range of engine speeds ..... 1000-6000 rpm  
Corrected piston speed at 5000 rpm: 2340 ft/min  
Fuel recommended: Regular with 1 qt SAE 30 or 40 added to every 8 gallons  
Mileage ..... 26-36 (18-28) mpg  
Range on 9.5 gallon tank: 250-340 (170-270) miles

#### CHASSIS:

Wheel base ..... 98.0 in  
Tread, F, R ..... 48.0 in  
Length ..... 157.9 in (162.9 in)  
Ground clearance ..... 7.5 in  
Suspension: F, ind., coil, wishbones, anti-roll bar;  
R, centrally pivoted U-shaped rigid axle, coils.  
Turns, lock to lock ..... 2¼  
Turning circle diameter between curbs ..... 33 ft  
Tire and rim size 5.00/5.20 x 15 (5.60 x 15) 4J x 15  
Pressures recommended: 26 psi F, 20-24 psi R  
Brake type, swept area: drum, 9 in F, 8 in R;  
174 sq in  
Curb weight (full tank) ..... 1820 lbs (1985 lbs)  
Percentage on driving wheels ..... 58%

#### DRIVE TRAIN:

Gear	Synchr?	Ratio	Step	Overall	Mph per 1000 rpm
Rev	No	3.87	—	21.01	—3.3(—3.5)
1st	No	3.16	101%	17.19	4.0(4.2)
2nd	Yes	1.57	64%	8.53	8.2(8.2)
3rd	Yes	0.96	—	5.23	13.1(13.7)

Final drive ratios: 5.43 to one (5.14 to one with \$130 optional four-speed transmission.)





96's new engine — at a steady 60 mph it is only turning 4600 rpm — and old shape (still so slippery that fluid from the windshield washers is curled around to the side windows by the snug-fitting airstream) are mainly responsible for the car's expressway performance.

A completely new shape is presented by the Sasson-designed station wagon. By extending the roof line straight back and ending the resulting body shape with an upward opening door that rakes forward when closed, the designers have very neatly solved the problem of seating six adults or five adults and two children on a 98-inch wheelbase. Seats include two individual ones up front, a bench seat in the center, and a smaller bench seat facing toward the rear set between the rear wheel wells.

Our experience with the wagon includes a trip on which four grown men and their baggage were transported 300 miles to a G.P. race and then 300 miles back to the city — all in one weekend. There were very few times when we blocked bigger, V8-engined cars, and when we did it was usually on long upgrades. The optional (\$130) four-speed gearbox would have helped during such encounters. All on board had room enough to fidget, while one of the bigger members of the group actually managed to sleep on the small rear seat. This tail gunner's perch seems designed to keep tykes happy making horrible faces at following motorists by pushing their noses against the glass of the lockable rear door. Other tyke-proof features of the wagon are the washable plastic upholstery, and the simple scuff-resisting interior finish.

Folding the small rear seat and the full-width middle seat

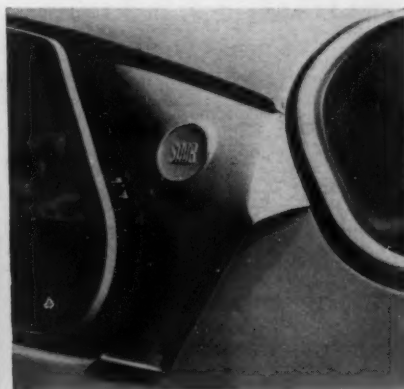
reveals a surprisingly large (63 inches long and 37½ inches between the wheel wells) steel-topped cargo deck. For really bulky cargo the wagon can be driven with the rear door open. Neither the license plate nor the tail lights are masked by the open door. For the suburban wagon user (who always seems to be running out of daylight on his "handyman" projects) two interior lights, both on the left side, make loading and unloading operations possible even in a pitch-black driveway.

All of this increased room and utility is bought at a slight decrease in performance and handling when compared to the sedan. The wagon, driven one-up, is a bit light on the rear wheels which might cause a sensitive or sensible driver to slow a bit on washboard surfaces. This tail flicking disappears as soon as the total load goes up over 200 pounds or so. General roadholding was not quite the equal of the wonderful surefootedness exhibited by the sedan. Two things, we think, were responsible for this. One, the wagon has a slightly higher center of gravity, and two, it was equipped with Trelleborg tires, which did not seem to give quite the same grip as the Continentals on the sedan. On acceleration the wagon would be about half a car length behind the sedan at the end of a quarter-mile. This could be attributable to the wagon's greater weight (180 pounds), or a slight difference in tune between these similar-engined cars.

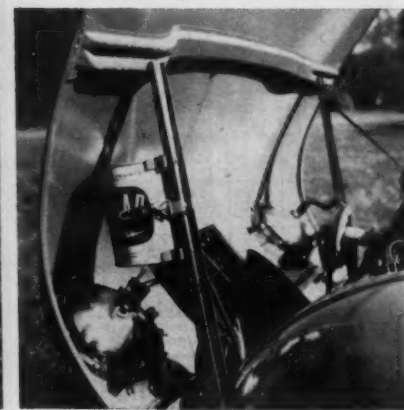
After an appreciable number of miles spent in both cars we think that any family lucky enough to have both in their garage would be supremely well-equipped to cope with any transportation problem, from cross-country tours to children's birthday parties around the corner. —SCI



Luggage lockers large and small. Both sedan and station wagon offer an unusual amount of room for baggage. Rear door on the wagon does not mask license plate or tail lights when fully opened.



In cold weather new-type rear window is kept closed and stale air exhausted through vent.



Saabs abound with neat little features such as this rattle-free bracket for spare can of oil.









by Donn Hale Munson

# BIOGRAPHY OF A BEAST

Once a Crosley Hotshot, the Beast has experienced some four thousand racing miles; it's seen owners come and go and has had three bodies. Far from retirement, the old campaigner will see action in 1961.

► This Biography of a Beast is not to suggest that it is a great car, but to refute the too-often-repeated fallacy that racing is strictly for the rich. Unquestionably there are race cars which are fancy. Undoubtedly there are cars that have collected more silver and gold hardware for their owners. But it's highly unlikely that there's another car which has provided more racing, less expense and as much fun as the Crosley Special.

In nine years, it has rolled up some four thousand miles of road racing and an equal number in fast practice. It has been campaigned the length and breadth of California and adjourned into neighboring states. It has ploughed through torrential rains and weathered through dense temperatures as high as least ninety percent of its races. And it has brought home at least a piece of the bacon an average of once out of every two starts.

It is, in short, one of the faithful campaigners which appear on program after program and without which no under 2000 cc modified event in California should ever complete.

Its biography belies the fact that old cars, like old soldiers, never die . . . they just fade away. In the eye of the little Beast it has refused to die, refused to fade, and is still

around traveling faster than ever.

Born about 1952 as a stock Crosley Hot Shot, it was acquired by a Southern Californian named Chuck Sassel. Like most West Coast racing enthusiasts, Sassel was not content with anything strictly stock. An accomplished and imaginative metal worker, Sassel began modifying the Hot Shot's body . . . lowering it, stretching it and rounding off its bony corners until it began to take on a sanitary appearance.

While the body work was in progress, Sassel sent the engine to another Californian whose name is synonymous with fast-revving Crosley engines. Nick Braje bored the cast iron block to one hundredth over its original 750 cc and fitted his famous dual carburetor intake manifold, tuned aluminum side plates and deep-fanned aluminum oil pan and sump cover.

What Sassel paid for the secondhand Hotshot cannot now be learned. It's easy to say it wasn't much. The Braje equipment represents the biggest single investment. But before he could complete it, Sassel got the itch for bigger, faster machinery and sold the Crosley to Jim Starbuck, a Norwalk, California, accountant who saw great potentialities in it.

"I got it cheap," he says. "I convinced my wife it was an

investment which I could easily resell at a profit."

But the man who can acquire a special and pass it along without adding his own modifications is rare. Starbuck was no exception. He promptly consulted Cecil Holloway, a Long Beach mechanic with a wealth of experience in hopping up Crosley engines for dirt track midgets, which then were burning up the Los Angeles area tracks. Holloway gave the engine an expert tune.

True to his expectations, Starbuck soon had a buyer. Bob Holbrook, a lean, avid road racing enthusiast who had taken occasional week-ends off from his job as assistant administrative director for North American Aviation to race his wife's Singer, bought the Crosley for \$500.

He drove it to his Westwood Hills home near Hollywood without windshield or hood in the Fall of 1954. He created a hood, installed a safety belt, fashioned a windshield and promptly entered it in the fifth annual running of the now-classic Torrey Pines race in November.

Being overbored, the car fell into Class G. Twenty-seven starters lined the grid in the under 1500 cc modified race that November weekend and they included some hairy machinery. There wasn't a car or a driver there that didn't have more experience than Holbrook and his mount. But when the flag fell, Bob wound the engine up to the pin and flew off the mark.

Today, Holbrook remembers little of the details but the record still stands. He placed the car second in Class G, tenth overall and was so deeply bitten by the racing bug he has never fully recovered.

Before he could squeeze in more competition, the 1954 season ended and Holbrook was forced to garage his little bomb until March, 1955, when he took the car to Palm Springs. The G-modified field was vast, the competition was hot. Holbrook could place the Crosley no better than eighth. About a month later the performance was repeated at Pebble Beach, where he ran sixth. One fact was glaringly evident: the overbored Crosley engine simply couldn't hack it in Class G. So Holbrook swapped the engine for a stock 748 cc block and began hotting it up.

Retaining the Braje equipment, he mounted two Carter type WO carburetors, installed Turner 9-to-one pistons, purchased an Iskenderian "T3" cam and acquired the last steel billeted crankshaft in stock at the Los Angeles shop of the U. S. Thermal Control Company, a firm that used hundreds of the little engines to power refrigeration units.

With that speed gear on the engine, the little car began to take on some of the beast-like qualities it still retains. When the racing season got into full swing May 28 and 29 at Santa Barbara's airport course, Holbrook was there.

Turning about 6500 rpm on the long straight and coming out of the corners almost 2000 revs higher, the little Beast pushed bigger, faster cars hard all through the under-1500 cc events. In two days of competition it captured second honors in both Class H and the under 1500-cc races. Bob returned home well pleased and with the beginning of an extensive trophy collection.

Almost from the very outset, the little Beast was beaten by cars which returned time after time to plague it . . . principally Johnny Porter's fantastically successful Aardvark Panhard and Harry Eyerly's full-race Crosley, which boasted a mill from a racing hydroplane, 9.5 to one compression and two MC-2 S. U. carburetors (see SCI, February, 1957).

In Class H modified racing anything goes. Eyerly, for example, had drilled every part that would stand it in order to reduce weight. Starter, generator casing, wheels, and ladder frame were Swiss cheesed. Holbrook began to realize his Beast would have to shed pounds to pass the front-runners.

But as every fan of road racing machinery knows, the mechanical casualty rate gets higher and higher as modifi-

cations increase. Holbrook had to proceed cautiously. He was unwilling to trade dependability for occasional first-in-class trophies. He ran the car a half-dozen more times during the 1955 season, bringing home second and third place cups every time out. At Torrey Pines he scampered off with a first in Class H with a very fast field at his heels.

February of 1956 was a time of change. Preparing for a Palm Springs race, Holbrook decided the Beast *had* to reduce weight. Class H was growing up and getting torrid. Holbrook took some drastic measures to stay with it.

The Hotshot frame was abandoned. A platform chassis of one and one-quarter inch square tubing was designed and covered by an aluminum body which, Holbrook declares, made the car look like a Brink's armored truck. Out came the faithful stock Crosley three-speed gearbox and in went a secondhand Austin A-40 box.

Artistically the car was a flop and seemed to share Bob's embarrassment. The body lasted just one unsuccessful race and was junked. Back went the original modified Hot Shot body and Holbrook was off to the racing wars again.

Running at Pebble Beach, San Diego, the Fiesta Del Pacific, and the old Paramount Ranch course, the little Beast continued to collect second and third honors. While at times frustrating, it was nevertheless gratifying because Holbrook was dicing with high-priced machinery and at the same time running the cheapest, most easily maintained modified race car on the West Coast. He was having a ball, "and that's all I was after . . . fun!" he declares.

While Holbrook referred to his car as the "T-Bug", it was becoming known far and wide as "that little Beast". Now three years old, it was still running on most of its original Crosley parts . . . axles, springs, wheels, rear end, etc. To put it in racing trim required only changing plugs, a slight tuneup, and occasional tires right off the nearest Firestone dealer's shelf.

Early in 1957, Holbrook sprang a surprise on his competition. Three years earlier, Cecil Holloway, the man who de-



signed the tubular frame, had admired the modified Hotshot Body, and cast a mold from it. Holbrook returned and asked if the mold were still around. It was. So, in a single Sunday afternoon, Holbrook and Holloway laid up a fiberglass body and fitted it to the Beast.

The "new" car made its debut at Paramount Ranch in December of 1957. Few persons recognized it as being changed. But Holbrook had shaved the body weight from 135 pounds to a mere 65. He had inexpensively sliced off eight pounds per wheel by switching from stock Hotshot brakes to spot discs, which he bought secondhand.

Although the Beast was faster, so was the competition. There were only a few of the pioneers of home-built H class racing still around. Perry Peron was running a blindingly fast Panhard which was acquired by Dr. William Molle. Jimmy Orr, from northern California, was running a Devin-bodied Panhard to victory after victory in his section.

Holbrook was still collecting second and third place awards with tedious regularity. "Always a bridesmaid, never a bride," he sighed. But he carved out a niche for himself as one of the top ten in class point standings.

Taking on all comers in class, the little Beast was still sparking along under his steady hands. It campaigned from Pomona to Pebble Beach, where it ran in the under 1500 cc events which lasted an hour and a half. The little cars ground around the twisting course for ninety miles, turning over 6500 rpm all the way.

The Beast seldom if ever quit. Carefully kept records compiled by Holbrook's wife, Anne, show it fell into the did-not-finish lists less than ten percent of the time . . . a remarkable feat considering that at least half of the field usually breaks down in long Class G and H modified races.

Holbrook made few changes to the car, maintaining it himself. With the aid of his friend Johnny Porter, new exhaust headers were fashioned. The Braje intake manifold was drilled so either single or dual Carter carbs could be used. Holbrook kept fresh paint on it, switching from prime black to red, to white, and eventually blue.

In all its racing career the car has never been spun out! Blessed with extreme stability, the Beast corners flat and quick, scoring heavily against bigger, faster cars on tight circuits. "It goes where you point it," its present driver, Harvey Simon, says and credits its fine handling to a combination of semi-elliptic springs in front, augmented by deep tubular shocks, and coil springing plus deep shocks on the rear. Both the front and rear axles are solid.

Holbrook campaigned the car for 40 race weekends, battling traffic composed of 35 cars per race. Under such conditions it is mathematically odds-on that the car would be

involved in an accident. Yet the Beast figured in only one car-to-car contact, and that of no consequence, and it came unglued only once. That was at Paramount Ranch, a real sporting course that no longer exists.

When in the heat of competition the Beast broke a left rear axle, the little car dropped gently down on a brake drum. The wheel went sailing away while Cliff Bundy in another special nonchalantly toured around the cripple. Holbrook steered his mount calmly off course and waited for the tow truck.

A growing family, and the press of business, convinced Holbrook to quit racing the Beast in 1958. He offered it for sale and it was snapped up by a Whittier High School boy who traded a shiny Volkswagen and \$100 cash for it. Holbrook promptly sold the VW for \$1000 and figured he was money ahead for four years of racing.

The Beast's new owner kept it only a few months. Sadly enough, he attempted to convert it for daily jaunts between home and high school. He reduced the roll bar six inches, chopped holes for headlights in the nicely rounded fenders and in some mysterious manner bent the Isky cam. His parents were delighted when he sold the car for \$500 to the writer.

Aware of its past performance and seeking only a few more fun events out of it, the new owner did little more to the Beast than put it back in reasonable tune, fit it with new plugs and enter it in a high-speed slalom in Van Nuys. Despite the fact that it would still growl off the line at 8500 rpm, the tired little Beast simply couldn't turn quick enough on the cramped parking lot course. It refused to be reduced to a go-kart type circuit.

Before its record could be completely disgraced, the Beast was whipped out to Willow Springs for a private practice session. The minute it was on the course the Beast seemed to shake itself like an old firehorse hearing an alarm.

Its 748 cc engine screeched like a banshee, its flabby old fiberglass body quivered and its oil gauge reading rose and  
(Continued on page 76)

PHOTOGRAPHY: REICHLER, NORCROSS, ROBISCHEK, PALMIERI



Just about the only things immediately recognizable as Crosley are the wheels and front suspension. The straightforward tubular frame has a much lower than stock driving position, coil-spring rear suspension.











► Taken as a product, as an automobile encountered at the curb, a Volvo appears ordinary, undistinguished. Just as a drive in a PV544 or 122S shows abilities out of proportion to the car's modest appearance and specs, so a visit to the factory in Sweden uncovers the outlook that makes Volvo a car to be reckoned with in all the world's markets.

One of the most impressive facets of the factory's policy is its attitude toward purchasing components. When the car-building Volvo firm was founded in 1927, it was largely an assembly factory, buying most of its components outside the main plant at Göteborg. Today the main plant is still used mainly for assembly of cars and trucks, but Volvo now owns its own engine plant, AB Volvo Penta-Werken at Skövde, and its own gearbox plant, Köpings Mekaniska Verkstads AB, in Köping. But, as before, these subsidiary companies must compete with other manufacturers within and without Sweden for each job undertaken by the parent company. When a new gearbox is needed, for example, ZF gets as much of a crack at the job as the Köping factory. The work goes to the supplier who can do the best job at the lower price, be he a Volvo affiliate or not. Obviously, this keeps everybody on his toes.

In the same line is Volvo's completely international attitude toward car building. This was well described by Assar Gabrielsson, Volvo's founder, as follows: "The large industrial countries in which our competitors work can be regarded as sealed units. A British car manufacturer would never think of buying a carburetor in Germany or France even if it was better. The American automobile industry limits itself exclusively to the United States just as German and French manufacturers restrict their manufacturing activities to within their own frontiers. But when we at Volvo bought abroad we did not favor any particular country. We bought where we found the best product. Our purchasing field became larger and more varied since we did not need to have any consideration for nationalist feelings." The constant appearance of American-labeled crates and cartons along the Volvo assembly lines prompted us to ask about the extent of the company's business with the States. The answer was astonishing: Volvo buys between 12 and 15 million dollars' worth of products annually from 120 American companies!

No less impressive is the open, candid skepticism and conservatism of the Volvo engineering staff. New ideas are not discouraged; on the contrary they're actively sought out and eagerly examined. Examined, that is, under a microscope without a tinge of rose coloration. No design feature — and certainly no automobile — is released for production and purchase until it has been fully proven under the most rigorous testing. This takes time, but it's time that Volvo is willing to expend. Often it means that the company isn't in the vanguard of technical progress, but this doesn't perturb Volvo. "If we had to make the choice," one engineer told us, "we'd much rather be six years behind the times than six years ahead."

This attitude toward progress is firmly founded on the resale market for Volvo cars. The factory's feeling is that any modish or unconventional features are likely to be viewed dimly by the buyer of a used Volvo, and that the cost of owning a Volvo will thus increase. This is the credo: transportation at the lowest cost to the owner. First cost may be higher, as a result of the care taken in manufacture, but resale will be equally high. Money that other makers might spend on warranty claims is spent on inspection and testing before the car is bought. It's an outlook that produces a completely honest automobile.

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At Göteborg the P1800 joins its predecessor, the Volvo Sport, and the engineers who created it. From the left they're Mr. Stalblad (engine design), the Editor, Mr. Berthelius (passenger car design), Mr. Lidmalm (overall engineering director) and Mr. Larborn (research and testing).

Volvo, Latin for "I roll", will forge ahead with its exciting and solidly-built sports coupe, the P1800-available here at last.

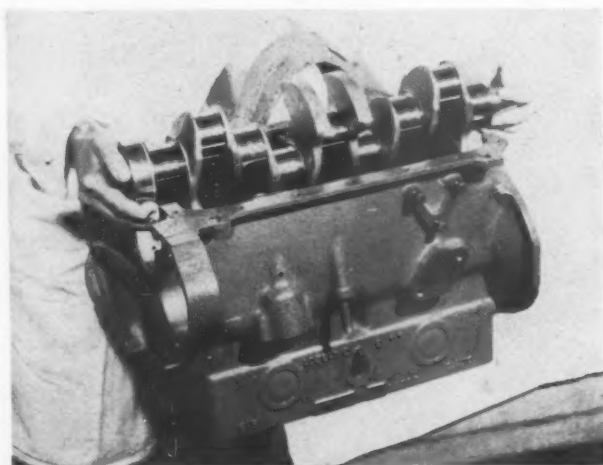


# I ROLL!

by Karl Ludvigsen



In Frua's shop in Turin, young Pelle Petterson (in pullover) supervises shaping of the wood buck that guided the lines of the three prototypes.



Beautifully forged by Bofors, the B18's five-bearing crank features wide journals and allows far higher speeds than the valve gear now permits.

58/SPORTS CARS ILLUSTRATED/FEBRUARY 1961

All these considerations and many more bear on the character and existence of Volvo's new sports car, the P1800. Before we drive the P1800 to see what it's like, let's review the remarkable history of the design, beginning with the first germs of the idea. It's a fascinating tale, told here for the first time.

**EARLY FIFTIES:** On a visit to California, Assar Gabrielsson became very interested in fiberglass body construction and placed an order for ten bodies with Glasspar. While a stylist was sent from the factory to design a two-seater sports car shape, Tor Berthelius, chief engineer for passenger cars, set about creating a chassis to go under it and a twin-carb engine to power it. Though a series of the cars was projected, the sole purpose of the project was the evaluation of fiberglass.

**JUNE, 1954:** The convertible "Volvo Sport" was announced. While some 50 or 60 of the cars were built, extensive testing was carried out, much of it in Africa under the supervision of Helmer Petterson, long-time engineering consultant to Volvo. Two or three prototype five-speed transmissions were supplied by ZF for testing in these cars, but they never entered production.

**FALL, 1955:** Under pressure from the growing U.S. market, the 70-bhp Sports engine was made available in the PV444 sedan. This is one of the few times that Volvo Engineering released a unit they weren't absolutely certain of, but it proved to be an excellent move.

**APRIL, 1956:** The Volvo Sports was put on show in New York, drawing many inquiries and indicating strong interest by Americans in a Volvo sports car. This encouraged Volvo's U.S. representatives, and the West Coast distributor in particular, to apply added pressure to Göteborg to build a serious sports machine.

**FALL, 1956:** Helmer Petterson also felt a sports car belonged in Volvo's future, and had prepared some preliminary designs for possible two-seaters. These were examined by President Gunnar Engellau as U.S. interest increased, and Helmer reported these developments to his son Pelle, then studying industrial design at Brooklyn's Pratt Institute after gaining his mechanical engineering degree in Sweden. So busy were the Volvo styling and engineering departments with current projects at that time that it was decided that any new project would have to be handled externally.

**APRIL, 1957:** Engellau gave the go-ahead for design and construction of a sports car prototype. Several firms were examined; Frua, by then a subsidiary of Ghia, was selected to do the job.

**JULY, 1957:** Working on the premise that as many parts as possible from the Volvo 122S sedan should be used, drawings of proposed sports car silhouettes were prepared by Frua and by resident stylists at Ghia. Each firm was allowed two such proposals. In addition a single proposal was prepared by Pelle Petterson, who was by then working at Frua.

**AUGUST, 1957:** All five side-view drawings were shown, anonymously, to Gunnar Engellau. He chose Pelle Petterson's design. Work immediately went ahead at full speed on the construction of three prototypes at Frua's shops, with Pelle in charge of the shape and his father designing the internal structure. As it had already been decided that the bodies were to be built by Karmann in Germany, engineers from that factory prepared working drawings as quickly as the wooden styling buck took shape.

**DECEMBER, 1957:** Engellau came to Turin to view the first prototype. He approved it, even to the stipulation that the production cars were to follow its design as closely as possible. While the second and third cars were built, Karmann made further progress with the body drawings and dies.

**FEBRUARY, 1958:** The original timetable, which called for delivery of production cars in late 1958, was destroyed when Volkswagen refused to allow Karmann to undertake the body construction.



During our tryout the P1800 paused at Sweden's Uddevalla shipyards, north of Goteborg. In production a straight rear bumper replaces design shown.

**SPRING, 1958:** NSU and Drautz, among other firms, were asked to bid on the P1800 body, but no satisfactory arrangements could be made. Swedish newspapers got wind of the project and published photos of the prototype, leading to an acknowledgment by Volvo of the existence of the car, prematurely, as events were to prove.

**FALL, 1958:** Despairing of ever seeing their coupe go into production, the Pettersons made plans to build it independently with Volvo components, feeling as they did that such a car would be a commercial success. That they were able to obtain substantial backing for this plan convinced the Volvo management that the car was worth serious attention, and negotiations with body builders were stepped up.

**DECEMBER, 1958:** The decision was made to build the car in England, with body stampings by Pressed Steel and final assembly by Jensen Motors. As it eventually developed, this meant that the *whole* structure would be made in England, departing from the original concept of using 122S panels — a stipulation which naturally had influenced the outline of the prototypes.

**JULY, 1959:** Pelle Petterson checked, and approved the British wooden tooling buck. Squads of inspectors and liaison men from Volvo supervised and examined all stages of the work, which was being severely hampered by strikes in England. In the meantime, the prototypes were being tested in Sweden for development of handling, ride and propulsion.

**APRIL, 1960:** The third of the Frua-built prototypes was shown in New York, receiving wide acclaim.

**FALL, 1960:** Jensen ships the first few pre-production cars to Volvo for thorough testing of the body structure and final determination of the technical specification.

**OCTOBER, 1960:** The first journalists drive the pre-production cars (SCI included).

**FEBRUARY, 1961:** Deliveries begin in Sweden, and a very few cars come to the States.

**APRIL, 1961:** A visit of Volvo dealers to Sweden should mark the first major delivery of P1800s to Americans, and should be followed by availability across the U.S. Production target for 1961: 6000 to 7000 cars.

That's the way this handsome sports car, so long awaited by so many Americans, finally reached production. While this was going on, the technicians in Göteborg had not been idle. For some time they'd been amazed that their three-bearing pushrod four so sturdily stood up to 85 horsepower, in its final B16B version, and they'd already experimented with a five-bearing crankshaft for that block. Then a wholly new design was prepared, also with five bearings, that would offer increased displacement and provide room for yet more increases. This was named the B18, and the twin-carb version in the P1800 is the B18B.

This new engine is abnormally sturdy, with its beautiful Bofors-forged crank, in spite of a weight only a few pounds higher than the B16 engine. It's now being produced in small lots (500 was the first batch) on a short assembly line in the Skövde factory, which is fully tooled for quantity production of the B16 unit. At a future date, probably no sooner than 1963 or 1964, the B16 line will likely be changed over to the B18, which is already being tested — in single-carb form — in the 122S. But this is well in the future. Now the B18 is slated only for the P1800, and possibly for the new Jeep-type vehicle Volvo is developing. Its stiff structure indicates an interest in a possible diesel version of the B18, and this was in fact originally taken into account, but Volvo now feels the market for smaller diesels isn't as promising as it appeared a few years ago.

Equal attention has been given the gearbox. While it went on using the well-tried two-speed- (Continued on page 62)





## ROAD RESEARCH REPORT: FACEL VEGA FACELLIA

Continued from  
page 32

distributor with somebody else in the Midwest. They will handle distribution themselves in the East and in New York the main dealer will be Huntoon & Raffo, a well-known Cadillac agency. The figure for number of leaders is therefore given only for the Eastern area, since this will be up to the distributors in their areas. Similarly, it is difficult to do more than estimate either annual production or the value of spare parts likely to be on hand at the first of the year.

Servicing information is gathered from the owner's manual. Other RRR changes effective this month are the inclusion of the ground clearance, which we measure with some gas in the tank but nobody in the car, and factory-recommended tire pressures. Both these figures will be of interest, the ground clearance since it often is far less than the manufacturer claims and the tire pressures since they often recommend far softer settings than we find expedient in our Steering Behavior tests and on the road.

### OPULENT INTERIOR

The flush external door handles stirred much interest. How do they work? The secret is that the push button is what unlatches the door; the finger pull that pops out serves to pull the door open.

The dashboard layout is impressive. The fittings and trim are opulent, yet the arrangement of the dials is extremely practical. The tach and speedo are symmetrically placed in front of the driver. Reducing parallax error, they are canted slightly towards the driver's eyes, at least in the horizontal plane.

The calibrations on the speedo are in kilometers per hour, with mph markings on the inner rim. The latter are labelled at 25, 50, 75 et cetera with tick marks halfway in between. This makes it difficult to pace yourself legally unless you're pretty sharp at multiplying kilometer readings by 0.62137 in your head. The distance recorded is also in kilometers. With premium gas, the barest trace of knocking was experienced at wide-open throttle at low revs. It's conceivable that super premium and a further advanced spark would provide a shade better performance.

Other instruments are on the center panel. Under them is a row of toggle switches, a space for a radio, and the heater-defroster controls. This panel extends right down to the transmission tunnel, but causes no inconvenience as the two seats are well separated anyway. It makes you feel as if a niche had been carved out for you within the car. Top and bottom, this panel is rimmed with black, leather-covered rubber padding to round off the edges of the flat crackle-painted panels. The glove compartment is very small and the door pockets, while large in area, are tightly thin and hard to use.

### DISAPPOINTING SEATS

The twin bucket seats are striking in

their simple beauty. Everyone commented on them and it was easy to suppose that an architect or furniture designer had created them especially for the Facellia. In occupancy, however, they disappointed virtually everyone who sat in them. There is no side support whatsoever, the seats almost appearing to have been extruded through a giant die.

No fault of the seats themselves, the seating position too leaves a lot to be desired. The steering wheel comes too close to your knees and also sticks up so high as to become part of the driver's "horizon". Its 16½-inch diameter could really be reduced without the steering forces getting uncomfortable.

The seats can be adjusted through a range of eight inches, twice the usual domestic allotment. The seatbacks are adjustable for rake angle, though you have to get out of them to do this. With so much to adjust, the only obstructions to complete seating comfort are the too-large, too-low steering wheel and the too-low, too-soft seats. To get right to the heart of the problem, it's a pity that a brand-new sports car design should pass the frame tubes right under the seats rather than spreading them outboard to run under the door sills. The relation between one's seat and one's legs is too similar to that in a Corvette or a Jaguar XK. Just as in those cars, the driver's position in the Facellia has been compromised to achieve a stylishly low roof line without troubling to make the more complex frame that would give both a low roof line and a comfortable seating position for most drivers.

### TWO TOPS AVAILABLE

The Facellia we tested had a hardtop fitted. It can be removed but since we did not have the folding canvas top as well, we never elected to take it off. This way we enjoyed considerably more space behind the seats. There is no back seat, so a lot of luggage can be stored there although no provision is made for attaching tie-down straps as in a Porsche. If a throw pillow were put back there, it would be a satisfactory spot to carry an adult sitting sideways for short distances. Two adults, with their chins on their knees were obliged to squat there with their heads bent well forward to clear the sharply sloping rear window. The latter is plastic and must be cleaned only with a clean soft rag and lots of water to avoid scratching it.

The frame around the wind wings did not merge accurately with the sealing strip on the hardtop. Together with the very

slim rain gutters, this caused a small leak that was noticeable when driving off after the car had been parked overnight in the rain.

In a pricing arrangement similar to the Corvette's, the Facellia purchaser has his choice of either hard or soft top with no difference in price. For about \$260 extra, he can have both.

We drove a soft-top Facellia for a few miles and greatly admired the ease with which the top can be raised or lowered without leaving the driver's seat—and without any help from a passenger either. With the top down but the windows rolled up the cockpit is pleasantly airy without being drafty. In either car, we were never aware of any wind noise at any speed.

### RECENT REFINEMENTS

Since testing the Facellia, we understand that a truly four-seater coupe was introduced at the Paris Show. Its rear window is less sloping, providing headroom for the two rear-seat passengers. Knee-room, we were told, is still minimal but there is a rear seat cushion. Cars for America and England have speedos in miles and seats offering side support "are available to anyone who wants them."

All Facellias have wind-up glass windows in the doors. Since our test car was built, two excellent changes have been made. The number of turns to lower or raise the window has been cut from 5½ to 2½ and the handle has been moved way forward and down so that it no longer is a constant irritation to one's knee. The door handles were also changed on the inside. Our test car had awkward forward-hinged handles. Newer cars have recessed slide-handles which are pulled straight-back but still can't be locked from the inside. They are shown in the cutaway drawing.

Some cars are meant for show, not go, and should be judged accordingly. The Facellia is meant for go and show, and it achieves both, we must admit. Acceleration to match a Super 90 Porsche is not to be ignored and lines that turn heads aren't either. What makes us admit all this so reluctantly is the manner in which both targets are achieved. The "go" is there, but it's offered in such a way that a mechanically sympathetic driver uses it reluctantly, while the "show" is achieved at the sacrifice of bodily comfort.

The Facellia combines the economy and ease of parking of compact-sized cars with the zip and extravagance of custom-built machinery. What it lacks in driving fun, it makes up in prestige. —SCI

## MORE NUMBERS GAME by Len Prokine

If you were with us on the first lap around this course, you will recall that the object here is to study the twenty pairs of similar model numbers below, then supply the proper make for each model number. And in the event that some of you found the first lap not too difficult, we've spilled a little oil on the track. We've brought in Ferrari and Maserati, although we're still not using their engine-displacement designations.

1. 90	93	11. 208S	122S
2. 700	T-700	12. 135	735
3. 540K	541	13. DB4	DB750
4. 40A	A-40	14. 105R	17M
5. 202	203	15. 120	EX-120
6. 401	501	16. 35A	35C
7. 850	851	17. 8 Litre	Type 8
8. 328	356	18. Mk. XIII	Alphonso XIII
9. 2.3	2.4	19. Z103	W196
10. 250F	250GT	20. 550S	S440

(Answers for the Numbers Game on page 78)

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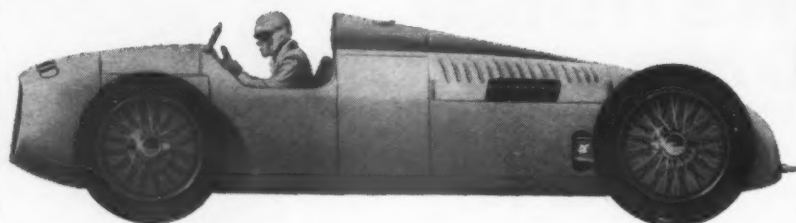
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#### I ROLL!

Continued from page 59

synchro three-speed box, Volvo designed an all-new three-speed with an aluminum case that included the bell housing. The idea of using a light-alloy box housing was dropped but the aluminum stayed in the bell housing on all models. At about the same time Volvo produced an all-new four-speed gearbox for, it was expected, 20 percent of the buyers of the PV444. Instead 80 percent of the customers demanded four cogs, which meant the new box really had to be mass-produced. Finally the four-speed was given a very clever redesign to allow it to serve also as an all-synchro three-speed unit, so there's one basic box for the Volvo passenger car line. To make a four-speed out of a current three-speed Volvo box you need only change five parts, add seven, and throw away two. Main changes in the unit for the P1800 include the special remote-control cover and needle bearings instead of bushings under the free-running gears on the mainshaft. Volvo rates the capacity of this box at 110 pound-feet of torque.

All this background information, garnered during our visit to the various Volvo factories and during frank talks with top-level engineers, set the stage for our first drive in a near-production P1800. The car was a much-flogged machine whose 12,000 speedometer miles included fatigue testing of the body structure, but our first impression was one of complete ruggedness and solidity. To be sure, the car has put on weight in the process of development. Against a prototype curb weight of 2300 pounds, which might have been reduced to 2200, the production car weighs 2500 at the curb. This may be cut to 2460 by judicious trimming before 1961. Volvo's intention was to build a comfortable fast-touring car, without competition aspirations, so weight was accepted without too many qualms. It must be admitted, however, that against the present SAE power of 100 bhp the added pounds do exert a lot of retardation. The car's acceleration feels strong and steady rather than lively, which led the Editor and European Editor to compare it unfavorably to a Super 90 Porsche. But when our rough preliminary acceleration figures were compiled, they followed the Super 90's curve remarkably close. Here's a sampling (not official until we Road Research the P1800):

0 to 30: 4.0; 0 to 40: 6.7; 0 to 50: 10.1; 0 to 60: 14.0; 0 to 70: 20.1; 0 to 80: 26.7.

This new B18 engine is as solid-feeling as its specs indicate. Right now the rev limit is set at about 6200 rpm by valve crash, but reworked units have been turned to 7800 without ill effect. Between 5000 and 5500 rpm there's a natural vibration period that shows up in the gear lever, not too pleasantly, something the development engineers are still attacking. The car's deceptiveness is enhanced by an utterly silent exhaust system, which produces far less sound than the carb air intakes. Only the

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slightest running-on was experienced when the engine was switched off.

You sit well down inside the P1800—a secure, part-of-the-car atmosphere. The driving position is fine, with long seat travel available and a gear lever just where you want it. There's not too much tolerance in the driver's eye level, between hitting your head on the roof and not being able to see over the hood, but when properly adjusted the view is good all around and comfort is exemplary. The optional wooden wheel (whittled out by an English cabinetmaker) controls steering with a strong caster action and an excellent lock.

After exhaustive testing Volvo chose Pirelli Cinturato tires on 4½-inch rims for the P1800; on these casings the car clings to the road with leechlike tenacity. Basically the sports car chassis has been tuned to a foolproof kind of understeer, with a heavier anti-roll bar than on the 122S and suggested front tire pressures lower than those in the rear. It's practically impossible,

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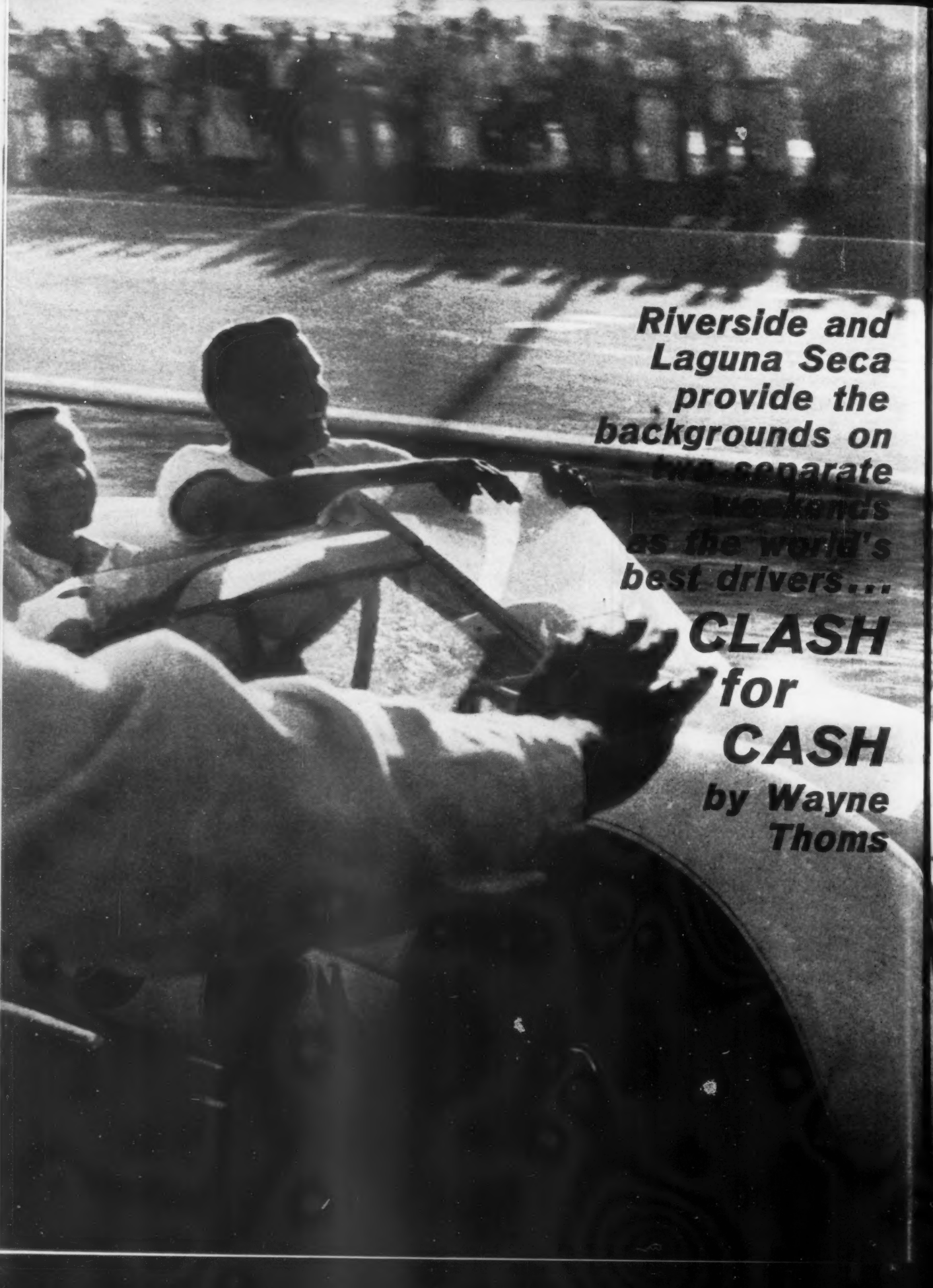


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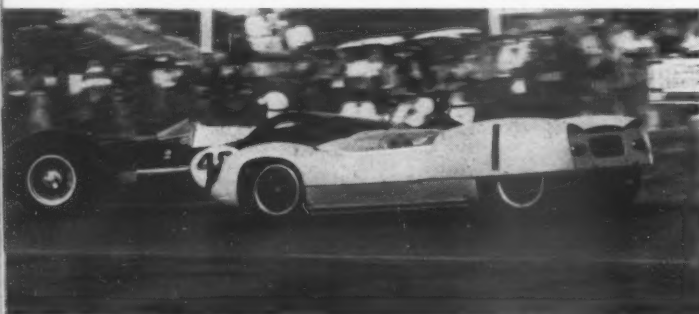




► Much of significance occurred in West Coast road racing on successive October weekends—Riverside (October 15-16) and Laguna Seca (October 22-23). Not only was there a gourmet's diet of exciting racing, but the divergent nature of the circuits and the fact that many of the world's finest drivers were in some of the best sports-racing cars offered an unusual opportunity for comparison and evaluation of men and machines.

Following a successful and popular pattern, both events were newspaper-sponsored with USAC sanction, F.I.A. approval and local sports car club cooperation. Riverside was a Los Angeles Times-Mirror Co. promotion while Laguna Seca had the San Francisco Examiner behind it. Both were big-money events with purses of over \$20,000 each to split among the fortunate.

The cash brought out cars—an abundance of so many good machines that one could hardly walk through the pits without stumbling over a Birdcage Maserati (nine were



Jim Hall jumped out of his Riverside V8 Maserati into Stan Sugarman's Birdcage to finish second to Moss (1) in the first heat at Laguna Seca.

entered). RSK and RS-60 Porsches, Ferraris of all sizes and types, specials, Cunningham's one-off Le Mans, Jaguar, and a pair of sparkling new 2½-liter Lotus 19 Monte Carlos for Dan Gurney and Stirling Moss brought home the fact that this was one of the best fields ever assembled.

First, the courses: Riverside, 3.275 miles with a partly-downhill mile straightaway, offers a certain advantage to larger cars. During practice, for example, Richie Ginther, in Fred Knoop's 4.1-liter Ferrari, set a speed record of 173.08 mph through the back-straight traps. Under-two-liter cars very rarely exceed 140 mph there. The course combines fast and slow turns and it can be tricky, but most drivers like it. It is quite smooth and wide enough so there are many areas where it's safe to pass.

Laguna Seca, on Fort Ord property near Monterey, stands out in sharp contrast. Often termed an under-two-liter course, its 1.9 miles are hilly, narrow, twisting and relatively fast with little margin for error and few places for safe passing. Both circuits present their special brand of challenge and it takes a driver of outstanding ability to master both. Like Riverside, it too has nine turns. A comparison of speeds and times with Riverside indicates just how much closer together the turns are at Laguna. A very fast trap time at Laguna Seca is 125 mph while the race average, set by Moss during the second 100-mile heat, was 86.4 mph. Riverside's race average, a new record by Bill Krause, was 91.5 mph for 203 miles while Dan Gurney set a Riverside qualifying record lap of 98.116 mph (2:00.93).

Qualifying and practice at Riverside were sources of great anxiety to promoters and entrants alike. Strong winds—30 to 40 mph—swept great clouds of dust across the circuit, slowing lap times and making driving so unpleasant that many drivers tried to hold off their qualifying until the last possible minute. But with some 85 cars entered for 33 starting positions, some had to try it in the wind.

Under such conditions there were bound to be complaints. Moss was extremely upset about the relatively short practice sessions. He said that it was just impossible to explore the many possible engine and suspension combinations (he put them at 300) he wanted to try with such limited stints of running. As of Sunday morning he had completed only five laps of practice, but only part of this was the fault of the organizers. On Friday, Moss appeared with the car for technical inspection. Because it had no roll bar it was turned down, but Moss decided to practice anyway and entered the course. Along the back straight he incurred a fuel leak which promptly started a blaze in the engine compartment. The result: Stirling received a slight singe, the fiberglass body sagged slightly under the heat, and it was necessary to rewire the electrical system and replace the fuel lines. Naturally there was some delay in the availability of the car for practice.

Moss's lack of roll bar and the way the problem was resolved are of interest. He didn't have one built into the car (neither did Gurney's identical Lotus) and its lack was due to an honest misunderstanding. Moss believed that under F.I.A. rules he had the option to race without it. He further pointed out that the car's somewhat delicate multi-tube construction would make it very difficult to weld in a roll bar that would meet the exacting specifications of the technical committee. And because he prefers not to use a seat belt, he couldn't see the logic of a roll bar. Because of the car's lightweight construction he admitted that if it were involved in a high-speed crash it would surely be demolished. And in that case he didn't want to be around.

But rules are rules. There had to be a roll bar or Moss would not be permitted to run. This was only fair to the other entrants, most of whom had gone to considerable trouble to install the safety device. A crude-looking bar was installed overnight. It is not for us to judge its efficiency but its only connection with the automobile was via some U-bolts that clamped it in place. After some deliberation the car was approved to run. Gurney's roll bar had more of a look of permanence, possibly because car owner Frank Arciero will be running it locally where safety requirements are known in advance and enforced.

Qualifying, normally not de- (Continued on page 68)



After a d.n.f. in the first heat at Laguna Seca, Augie Pabst bounced back with a second in the second heat in the Meister Brauser Scarab.

After a violent crash in Riverside's Esses on lap eight, Don Hulet escapes from his burning Lister-Corvette with burns and cracked ribs.









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## CLASH FOR CASH

Continued from  
page 66

signed for exciting watching, began to build an air of tension as soon as a few times were announced. The competition was so keen for the coveted 27 starting berths (17 over and 10 under two liters) that lap times were way down from previous races. (An additional top three cars from each of the two consolation races were added to the grid for the 33 total.) Gurney stunned the hometown crowd with a new record of 2:00.93, thereby giving an impressive preview of the Lotus's potential. Moss followed with the second best time — 2:03.62 — making these two new machines, the only in existence at the time, the pair to beat.

The first 10 qualifiers had barely a six-second spread between them. After Moss came Bill Krause's Birdcage, Augie Pabst's Scarab, Carroll Shelby's Birdcage, Jim Jefford's Birdcage, Jim Hall's 4.5 Maserati, Roy Salvadori's Cooper Monaco, Dick Thompson's Sting Ray Corvette and Phil Hill in a three-liter Ferrari at 2:06.97.

Surprising those who assumed the under-two-liter division would be all Porsche, was Walt Hansgen's new class record — a blistering 2:08.26 in a Type 60 two-liter Birdcage Maser. That his time was 15th down the list only attested to the quality of the big-bore competition.

Even with Hansgen's apparent chance to dominate the small cars, there appeared an opportunity to settle one of racing's more fascinating questions: who is the best Porsche driver in the country? Representatives from the East who posted qualifying times included Bob Holbert, Warrington, Pa.; Peter Ryan, Toronto; Roger Penske, Villanova, Pa.; Bob Donner, Colorado Springs, and Rodger Ward, Indianapolis. The West Coast group included Ken Miles and Jack McAfee, long-standing racing rivals from Hollywood, Steve Herrick, Los Angeles, and Scooter Patrick, Manhattan Beach. Joakim Bonnier was the lone European in the *marque* and he displayed the style which has brought him fame by turning in the top Porsche qualifying time, 2:10.63. Close in order were Miles, 2:10.79; Holbert, 2:11.44; Ryan, 2:11.49; Penske, 2:11.51; Donner, 2:11.60; McAfee, 2:12.65; Herrick, 2:13.0; Ward, 2:13.02; and Patrick, 2:14.89. Bonnier, Penske and Holbert, incidentally, were a three-car factory entry through Porsche of America.

Then Bonnier became embroiled in an argument with officials over the wearing of long sleeves. He likes the fresh air and threatened not to run, but the discussion was finally settled. After a few laps it was noted that somehow the wind had pushed his sleeves above the elbows.

The two five-lap consolation races were of interest not only because they added to the main-event grid, but because of some real talent that was just plain shut out. The six who made it (meaning their qualifying times were not fast enough originally) were Don Hulett (Lister-Corvette), Jack Brabham (Le Mans Jaguar),

Bob Herda (Huffaker-Chevy), Alan Connell (Birdcage Maser), Chuck Stevenson (Mercedes-Corvette), and Tony Settember in a D-Jag-Corvette. Those who failed include Chuck Daigh, Ak Miller, Paul O'Shea, Rodger Ward, Dick Morgensen and 19 others. We single out these five not in scorn but to emphasize that all are first-rate drivers, with ability on a par with the very best — and they couldn't make it.

The race ended in a storybook win for 27-year-old Bill Krause in the Maserati Representatives of California Birdcage. He literally ran out of gas on the cool-off lap and had to be towed to Victory Lane. But 62 laps and a lot of action went before.

Gurney almost lost his pole starting spot by being late onto the grid. Cars had already been moved up to fill in but the order was rearranged and the start delayed briefly as he rolled the car into the front position.

As the flag fell Moss jumped into the lead, followed by Gurney and the surprisingly rapid Sting Ray. Down the backstretch Gurney pulled into the lead and the order became Gurney, Moss, Krause.

Trading positions with Gurney, Moss led for four laps, but made a disappointing retirement on lap ten with clutch and transmission trouble. Seven laps later it was Gurney's turn to retire when his Lotus overheated due to a blown head gasket. While they lasted, the cars were very fast and nimble and it was doubtful that anyone would have been able to catch them. But winners must finish.

A spectacular and terrifying crash in the Esses during lap eight ended Don Hulett's hopes in the Lister. He overdrove turn three, veered to the left of the track, rolling and bouncing wildly at least three and possibly four revolutions. Even before the car came to rest on its wheels flames began to shoot from the body, enveloping it completely. After a terrible few seconds Hulett appeared through the curtain of fire, running clear. His injuries, burns and cracked ribs, were painful but not serious.

As Gurney dropped, Krause took the lead and was never seriously threatened although he was forced to keep up the pressure. Bob Drake, in Max Balchowsky's Old Yaller Mk. II, finished 32 seconds behind and was always within 55 seconds of the leader.

The real pressure came from third-placer Augie Pabst who pushed the Scarab within two seconds of Drake at the finish and probably would have passed him (because of Drake's transmission difficulties) had there been another lap. At lap 61 (of 62) Pabst charged to a 2:04.2 — an incredible competition speed and even more remarkable so close to the finish. Pabst's position was the result of a see-saw battle with Jim Jeffords in the streamlined Le Mans Birdcage Maserati. Following closely and making an exciting fight for most of the race were Shelby, Thompson and Hill. George Constantine in the Kelso-Lister-Chevy, holding third place until lap 17, retired in a cloud of smoke reportedly caused by using 7000 rpm as a rev limit.

At 20 laps, back in eighth, Jim Connor (Birdcage) was leading another close scrap with Brabham (Le Mans Jag) and Hansgen (two-liter Birdcage) trying to keep up. Clearly the highly-touted Jaguar did not have the handling or the speed and it is to

(Continued on page 70)

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(Continued from page 68)  
Brabham's credit that he was able to place the car in 10th overall.

As expected, Hansgen swept the small-bore class, finishing in eighth spot. Bonnier held a solid second in class until brake problems forced him out on the 20th lap, placing Miles in second. Close behind Miles (18 seconds at the finish) was Peter Ryan and the under-two-liter finish order fanned out to Holbert, McAfee and Herrick, the 18th and last car to finish of the 33 starters. If there are any conclusions to be drawn about the best Porsche pilot, they must be prefaced with the Maser's outstanding performance; Bonnier couldn't come within two seconds of Hansgen's time. As for Porsche drivers, the results are there for all to see.

Roy Salvadori gave an exhibition of driving that was not as flashy as some but which must be pointed up. Spinning his Cooper Monaco on the second lap, he dropped into 27th position. From there it was a case of fast, steady driving, picking off car after car until he finished sixth overall. Winner Krause commented that Salvadori was "really driving"—unique praise from a winner who managed to keep tabs on his competition that far back.

The ecstatic Krause, who could barely believe that he had won, picked up \$8550. Finish order and payoff, from second place:

Bob Drake—Old Yaller Mk. II	\$2625
Augie Pabst—Meister Brauser Scarab 1900	
Jim Jeffords—Maserati Type 61	1000
Carroll Shelby—Maserati Type 61	700
Roy Salvadori—Cooper Monaco	500
Phil Hill—Ferrari TR	100
Walt Hansgen—Maserati Type 60	2200
Jim Hall—4.5 Maserati	100
Jack Brabham—Jaguar (Le Mans)	100
Dr. Richard Thompson—Sting Ray	100
Bob Bondurant—Ferrari-Maserati	100
Ken Miles—Porsche RS-60	1500
Peter Ryan—Porsche RS-60	1000
Tony September—D-Jaguar-Corvette	100
Bob Holbert—Porsche RS-60	700
Jack McAfee—Porsche RSK	500
Steve Herrick—Porsche RSK	300
Winning average: 91.5 mph; Distance:	203.25 miles.

One week after Riverside, Moss demonstrated that he is indeed the master of the sports car scene by romping home to a clean victory in both of the 100-mile heats in the First Pacific Grand Prix. The spectators witnessed, in effect, not one but two exciting events with a 30-minute break between for repairs. While overall winners of both heats were computed, the standings were not too meaningful. Cash payoffs were made on individual heat performances plus a bonus to the overall winner.

If a disappointment award were offered it would surely go to Dan Gurney. During Sunday morning practice he sheared the flywheel studs of his Lotus 19. The pit crew worked mightily but it became apparent that a 45-minute extension of time would be needed past the noon deadline for qualifying. Ten minutes before the race was scheduled to start, Dan's car was wheeled to the line to qualify, but it was the opinion of the USAC officials that Gurney be given no special consideration.

Moss gave a hint of things to come when he chopped 2.4 seconds off the course record, qualifying in 1:17.3. Later, in the first heat, he lowered this 1:17.2.

After a familiarization lap to spot the oil dropped by the Formula Juniors the field was off and away on the first heat. Jim Hall, switching from his Riverside 4.5 Maser to a Birdcage for this event, led the first lap, followed by Krause (Birdcage), Moss, Brabham (Cooper Monaco), Pabst (Scarab), Shelby (Birdcage), Jeffords (Birdcage), Constantine (Kelso-Lister-Chevy), Thompson (Sting Ray) and Hansgen leading the under-two-liter brigade in the "Baby Birdcage."

It took Moss 15 laps to gain the lead. On the fourth lap he jumped around Krause at the hairpin turn nine but was outdragged down the straight. Stirling made it on the next lap at turn eight. Then there was Hall to pick off and it was done in traffic around the hairpin. From then it was Moss all the way. Although Krause moved past Hall into second, on lap 35 he dropped out with distributor woes.

After Hansgen was rammed by brakeless Dick Thompson (Walt had just passed Thompson into fourth place), the remaining laps were numbered for the small Maserati. He pulled in at lap 23 for repairs. This moved Holbert's Porsche up to lead the class and finish fourth overall, which further proved that on short courses Porsches do exceedingly well. Of the first 11 places, seven went to Porsche and the order offers an even more interesting comparison of Porsche driving ability than did Riverside.

First heat finish order:

Stirling Moss	Lotus 19
Jim Hall	Maserati Type 61
George Constantine	Kelso-Lister-Chevy
Robert Holbert	Porsche RS-60
Carroll Shelby	Maserati Type 61
Ken Miles	Porsche RS-60
Joakim Bonnier	Porsche RSK
Roger Penske	Porsche RS-60
Peter Ryan	Porsche RS-60
Rodger Ward	Porsche 550-RS
Bob Donner	Porsche RSK
Bruce McLaren	Jaguar (Le Mans)
Bob Herda	Huffaker Chevrolet
Loyal Katskee	Maserati Type 61
Alan Connell	Maserati Type 61
Jack Brabham	Cooper Monaco
Dr. Richard Thompson	Sting Ray
Chuck Howard	Lister Jaguar

Average speed: 86.4 mph

Fastest lap: Moss, 1:18.1

Fastest trap: Moss, 123.0 mph

Distance: 102.4 miles

The between-heat intermission proved valuable to several. Krause, for example, was able to repair his distributor trouble while Pabst managed some brake fixing. Moss, whose engine had been sounding sour, had his crew working frantically. Bob Drake, who had dropped out early in the first heat with shock absorber trouble, turned the wheel over to Gurney but this was to be a short-lived effort; the carburetor stacks dropped into the throttle linkage.

Two new cars, Jack McAfee's Porsche and Dave Ridenour's Lister-Jag, were added to the second-heat grid and the race was off.

The standing lap saw Hall in the lead, with Constantine, Moss and Shelby coming along. On the eighth lap, Moss had taken over the lead. Meanwhile, Brabham had moved to third, was pressing hard for and gained second, passing Hall in lap 15.

Pabst, who had started virtually at the back of the pack, began to pour it on in a brilliant display of speed and control. By lap 16 he had passed Holbert to take fifth place. On lap 27 he took Hall and then Brabham (who retired one lap later). Although Moss wasn't pressing to the limit, Pabst managed to close the gap to 16 seconds between them by the finish, for a demonstration that proved: 1) Pabst's ability; 2) that the Scarab is still a formidable contender.

Halfway through, Krause began to move from eighth spot, passing slower cars with a forcefulness that showed his midjet racing background. By the 50th lap (of 53) he was challenging Hall for third when he drove to the inside of Hall's Maser on turn nine. Hall was forced to brush the haybales and pulled to the start-finish line extremely upset. He finished seventh.

Shelby smoothly pulled into fourth while Hansgen took under-two-liter honors and fifth place. Bonnier was a surprising sixth.

Second heat finish order:

Stirling Moss	Lotus 19
Augie Pabst	Meister Brauser Scarab
Bill Krause	Maserati Type 61
Carroll Shelby	Maserati Type 61
Walt Hansgen	Maserati Type 60
Joakim Bonnier	Porsche RSK
Jim Hall	Maserati Type 61
Ken Miles	Porsche RS-60
Robert Holbert	Porsche RS-60
Peter Ryan	Porsche RS-60
George Constantine	Kelso-Lister Chev
Roger Penske	Porsche RS-60
Jack McAfee	Porsche RSK
Bob Donner	Porsche RSK
Bob Herda	Huffaker Chevrolet
Charles Parsons	Lotus Ferrari
Bruce McLaren	Jaguar (Le Mans)
Jack Brabham	Cooper Monaco
Dr. Richard Thompson	Sting Ray

Average speed: 87.3 mph

Fastest lap: Moss, 1:17.2

Fastest trap: Pabst, 125.2 mph

Distance: 102.4 miles

Payoff money, listed in the order of the computed overall finish but bearing no relationship to this order: Moss \$7000, Shelby \$800, Bonnier \$100, Holbert \$1450, Miles \$1100, Constantine \$800, Penske \$200, Ryan \$200, Krause \$700, Pabst \$1000, Herda \$100, McLaren \$200, and Hansgen \$1250.

To say that the two weekends were a success is an understatement. The happy Los Angeles Times promoters counted 80,000 spectators and the San Francisco Examiner about 60,000. The crowds were not disappointed in what they saw.—W T

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## DAREDEVIL

Continued from  
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deny fact; winning over the world's top drivers requires the tiger's spirit. It can only be hoped that Gregory will also develop the wisdom of a Fangio to accompany his unquestioned zeal to win.

"I guess I've always had a terrific urge to beat the next guy," admits the soft-spoken midwesterner. (He converses in a slow drawl, flattening each "t" to a "d." Example: "mountain" becomes "moun-den.") "As a kid I used to drag-race over the streets outside of Kansas City—and I remember on my first date with Lou [the girl he subsequently married] I told her to get out of my car and sit on the curb because her extra hundred pounds would slow me down." Gregory chuckles. "I won, but Lou was pretty irritated 'bout having to sit on the curb."

Masten began driving the family sedan at 15 ("at night, when it was supposed to be in the garage") and soon acquired a new Ford, which he hopped up for drags.

"This was in '49, when I was 17," he relates. "I was born in Kansas City, Missouri, but we were living in Mission Hills, Kansas, by then. I never really thought about going into the racing game in those days, and maybe I never would have but for Dale Duncan. Dale was married to Lou's sister, and he used to tool midjets on the dust. I got to watching him and figured I could beat the other guys just the way Dale did. 'Bout the time I was ready to learn he sold his midjet and bought an Allard sports car. That did it. I was crazy to get one just like his."

In 1951 Gregory's mother sold out her interest in the Postal Life and Casualty Insurance Company (founded by Masten's father, who died when the boy was very young). Since a fifth of the stock was in his name, Masten received a considerable sum of money, and immediately phoned Sidney Allard in England and ordered a spanking new sports Allard ("in a nice shade of blue, with wire wheels to match"). The car was shipped to New York and Gregory soon had it installed in his garage in Kansas.

"I was out of school for good long before this," states Masten. "Fact is, I never did get my diploma from high school. Walked out on the last day of final exams after a hassle with the principal over my driving. Anyhow, when the Allard arrived I took the Mercury mill out of my Ford and put it in the Allard. But the dern thing never did perform for me."

Part of the reason for this had to do with a share-and-share-alike policy between Dale and Masten.

"We'd both be working on our cars late at night," explains Gregory. "When Dale needed a part for his Allard he'd take it off mine. I'd be working like mad on the front end and he'd be taking apart the back end. It was quite a scene!"

Gregory's first race was a 50-miler at Caddo Mills, Texas in November of 1952, and weather conditions were not ideal.

"They ran the thing in a blinding down-pour," says Masten. "You just couldn't see the first turn at all in the rain, so I'd take a deep breath and grab second gear for the corner I knew was somewhere ahead of me. Ole Jim Hall, he went off there at 140 in his Jag and buried himself in mud. My engine lasted five laps 'fore it blew."

But Gregory had been noticed. Dale Duncan later commented on this competitive debut: "He was sideways most of the five laps, but people knew there was a 'natural' loose down there."

For the 1953 12-hour race at Sebring, Gregory hired speed expert Clay Smith to replace the ailing Merc with a new 325-bhp Chrysler engine. At the end of the first hour Masten was running fourth, behind the leading Cunningham and two factory Astons, but progressed no further. The rear radius rods broke, sidelining the Allard, and Gregory sat out the race on the pit wall for the remaining 11 hours.

"I was disgusted with the Allard, so I bought a new white C-Type Jaguar," says Masten. "But it was only putting out 210 horsepower, and I decided to stick with the Allard and give it another chance. We went on down to Stillwater, Oklahoma—an' Dale said he'd like to try out the C. So I said sure. Well, he finished second in that Jag, which sure surprised me. Still, I wasn't too unhappy, cuz I finished first."

Selling the Allard, Gregory shipped the C-Jag to San Francisco's Golden Gate Park in May of 1953. "I'd already nabbed a third behind Kimberly and Hill at Bergstrom Air Force Base, so I knew a little bit about how the C handled. Figured I had a chance for another third or so at Golden Gate."

Masten did better than third. The pre-race favorite, Phil Hill, stormed into the lead and looked a sure winner until his 2.9 Ferrari dropped its rear axle. Shortly thereafter J. Armstrong's Cad-Allard took over the front-running position, but Gregory engaged the Allard with his new C-Jag and the two drivers dueled furiously, exchanging the lead several times until the Allard's brakes faded in the final laps. Gregory hustled on to win his first major main event, with Armstrong trailing him under the checker.

Another victory trophy was added to his growing collection at Offutt Air Force Base, followed by a pair of second-place runs with the C-Type.

"In September of '53 I took the Jag to Floyd Bennett Field in Brooklyn," says Masten, "and, during practice, spun off the course into a ditch, splitting open the gas tank. When the C started burning, I cleared out fast. Singed some hair on my arm, but got out okay before the tank exploded. But it was close."

Gregory reached for his wallet and approached Henry Wessells who was sitting in the cockpit of his new red C-Jaguar. "I need another C-Type," he told Wessells, "so I'll buy yours." A cash-in-hand deal was made—and the next morning Masten was on the grid in his red Jag. (He didn't win the race, but he led for four laps until mechanical trouble forced him out of the contest.)

"That second C was never satisfactory," says Gregory. "When Bobby Said, Shelby, Hill and I all went down to Argentina



early in '54 to represent the States in the main event that dang C-Jag began overheating and I was real lucky to get a class third. I was so disgusted that I up and bought the 4.5 factory Ferrari that had won the race. I was determined to get a really fast machine."

Six weeks later, Gregory and his family were in Europe; he'd determined to try his skill with the 4.5 against the continental aces. His first outing there was the 12-hour event at Rheims.

Masten chuckles when he recalls this race. "With my crewcut, and weighing only 'bout 120, I looked like a 12-year old — and when I climbed into the big Ferrari the other drivers thought it was some kind of joke!"

Gregory's performance on the circuit was, however, no joke, and the Europeans were astonished to see the newcomer from America lapping some 15 seconds faster than his Italian co-driver, Biondetti, four-time winner of the Mille Miglia. At the end of 12 hours the 4.5 was out of brakes, but finished the grind in fourth position.

A third at Lisbon and a class second in the Irish Tourist Trophy established Masten Gregory as a serious European competitor, and at Prescott, England, he broke the hillclimb record by a full second and a half in practice.

"It rained on race day," he relates, "and when I shifted into second for the last sharp turn at the top of the hill the wheels began to slide. I went sailing off the top into space — and a thick hedge stopped the car before I hit bottom. But I guess I redeemed myself at Aintree."

Indeed he did. Against a full field of veterans (Collins, Parnell, Whitehead and Salvadori), he scored his first outright victory with the Ferrari after a race-long duel with the works Aston Martin driven by Collins. And at Monthery, Gregory's final race in Europe that season, he tooled the 4.5 to a splendid second behind Jean Behra in a disc-braked Gordini.

"Thought I'd take in Nassau before going back home," he says. "Fon Portago had his Ferrari and I had mine — and we mixed things up and had ourselves a ball. He won the semi-main and I took the main — after Fon had been kind enough to lend me a set of his own brake drums. He was that kind of a sportsman."

His overseas success in 1954 prompted Gregory to return to the continental wars in '55 — with a new 3-liter Monza Ferrari — and he split the "invincible" Mercedes SLR ranks at the Nurburgring by taking third behind Fangio and Moss (both in SLRs) and edging out Kling's Mercedes on that complex, dangerous circuit.

Gregory added another first-place cup to his trophy case at Lisbon, Portugal that season and stepped into a Porsche Spyder (co-driving with Shelby) on the rain-slick Dundrod course in Ireland for a solid class victory in the '55 Tourist Trophy.

"Late in the year, I decided it would be fun to race at Palm Springs, California," he says, "and that was the closest finish I was ever involved in. Ernie McAfee and I came out of the last turn on the last lap nose to nose and I nipped under the flag to win by a cat's whisker."

The 1956 season saw Masten take fourth in the Venezuelan Grand Prix for sports

(Continued on page 74)

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(Continued from page 73)

cars—and he returned to Nassau in December of that year to win an all-Ferrari handicap race in the lush Bahamas. Moss trimmed him in the main event there, but he held off Portago's 3.5 Ferrari with his 3-liter to secure second.

"Racing outside the States can have its advantages," grins Masten. "Take the race at Bari in '55 for instance. This was a night race, beginning at 10 p.m.—and we were all lined up for a Le Mans start, waiting for the countdown to begin. The wind was like ice off the Adriatic, and we were all shivering and complaining about the cold when a guy from Shell Oil comes down the line with a tray of cognacs. Well, that drink warmed me right down to the bones! Imagine having cognacs served before a race in the States. What a scene!"

Gregory firmly established himself in the international limelight in January of 1957 when he co-drove Temple Buell's Ferrari to victory in Argentina.

"I also got my first crack at a Formula 1 car down at Argentina 'bout a week later in the G.P. there," says Gregory. Pete Collins had a ride with Lancia, and when he nearly blacked out from alcohol fumes leaking into the cockpit, I got a chance to take the car out for the next heat. I said 'Great!' having no idea just what a G.P. car was all about. Still, I got a wonderfully lucky start and came by the pits at the end of lap one in third position—with ole Fangio himself breathing down my neck. We were just coming into a 160-degree left-hander, and I decided to make myself useful to the team and block Fangio through the corner. So I got my Lancia completely broadside with my front wheels almost touching one curb and my back wheels almost touching the other, figuring I'd foxed the master, that he couldn't possibly get past till the next straight. But when I looked up, he was going by me on the sidewalk!"

Signor Dei, of the Centro-Sud organization, had seen Masten drive the Lancia, and was impressed. He asked the American to join his private team for the upcoming '57 season.

"We had two cars," says Gregory, "both '54 models, and they were slower than the factory jobs of course, but the difference was not outstanding. We had a fighting chance to finish in the middle of the pack or better—and I was delighted with the prospect of battling the Formula 1 teams."

Gregory put in a fine season, finishing every event he entered with the Centro-Sud cars, and registering a splendid third overall at Monte Carlo. ("When Moss skidded off the road and Collins and Hawthorn piled up at the same spot I knew I had a chance to end up in the money. Monaco was very exciting.")

Gregory was getting all the excitement he could handle in the fast Formula 1 races: at Pau he "slid between some trees and a brick wall." At Naples, with locking brakes, he came close to plunging four thousand feet into the harbor. At Pescara, he hit an oil patch and almost grazed a power pole. By the season's end, he tied Harry Schell in championship points, scoring a sixth in the year's ratings with the outdated Maser (Behind him in '57 were such stars as Collins, Behra, von Trips and Trintignant.)

"I learned a lot about really fast driving that year," admits Masten. "Compared to the G.P. machines, sports cars felt heavy and difficult to steer. Also, you noticed the great difference in braking. With the G.P. Maser I could really go in deep."

However, Gregory continued to be successful in sports car competition. At Lisbon, after leading Fangio for 10 laps, he set the lap record on the final tour. Fangio won, but Gregory was close at his heels.

But disaster seemed to stalk Gregory as closely as he had stalked Fangio. His crash in Caracas, in late '57, could well have proven fatal had it not been for the roll bar Masten had insisted upon.

"I was leading the pack when I steamed the big 4.7 Maser into this tight corner," he relates. "I lost 'er, and slammed the fence, then turned turtle. I could hear people running toward me, but I didn't stay under there and wait for them. I kicked my way out."

In doing so, Masten broke both sets of his specially-ground goggles. Off circuit, he wears glasses, and a firm in London grinds his racing goggles to overcome his nearsightedness, although he sometimes races with glasses and a face shield. Commenting on this disability, Denis Jenkins once remarked that, in his opinion, Masten could never win a World Championship because of his eyes. Gregory refuses to admit that this is true. "If I never become champion," he grins, "it won't be because of my vision."

The Grand Prix at Monza, in 1958, certainly demonstrated this. After winning at Silverstone in a Lister-Jaguar, he later crashed there in the same machine. At Monza, his first race after the accident, he was obviously in a weakened condition, yet he insisted on driving a G.P. Maserati on this very demanding circuit.

He qualified in the third row, and was running fifth after 15 laps, then was holding fourth behind Phil Hill's Ferrari at 30 laps. By lap 40, with several competitors in the pits, he was second, but tiring fast under the savage pace. Yet only a second separated him from Hawthorn and the lead! Six laps later saw him rolling into the pits, in a state of collapse. Shelby took over the Maserati, finishing fourth.

When the Cooper works team signed Gregory on for the '59 season, he realized that here was his greatest chance to move to the top. The swift, agile Cooper became the car to beat, and Masten turned in some excellent performances at Aintree and Portugal and particularly in the G.P. of Germany at Avus, when he was the only Cooper driver in contention with the Ferraris. ("We were slipstreaming each other on the banking about three to four inches apart—and doing maybe 180 in the bargain! I'm real glad nobody made any mistakes in that one.")

Although Gregory has several business interests in the United States, including a lively bowling alley in Topeka, Kansas, he has no intention of giving up racing. He loves Europe, hungers to remain a part of the colorful Grand Prix circus—and is determined to erase the picture of himself as a "hairy pilot."

Having proven his nerve and will to win, the question now remains: can he go on to the maturity of a Farina or a Fangio?

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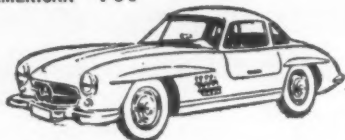
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## BIOGRAPHY OF A BEAST

Continued from  
page 55

sank like an alcoholic's blood pressure. Yet it flew down the straights, growled through the turns and galloped up the desert race course hills like a cavalry charger. The old girl had a lot of go yet . . . so much so that it was entered in a Cal Club hill climb on May 13, 1959.

Reappearing from retirement with a new owner, the venerable Aardvark romped up the hill under the lead foot of Lew Spencer to win the event. Bill Wheeler scooted his elderly D.B. up the winding circuit to edge out the Beast. The Crosley brought home trophy number twenty-one.

But the third place hardware was enough to win it a new lease on life. It got a careful tune-up and was sent to Santa Barbara for the big Cal Club Spring meeting. Handled by three different drivers, it did well considering its age and condition. It carried the writer from forty-third starting position to among the first half dozen in an eight lapper, going through the traps at close to 100 mph.

It showed it does not like lady drivers when it let its girl pilot down by shaking loose its throttle linkage and forcing her out while doing well in class.

The Beast sighed wearily, its tired fiberglass body sagging, as Harvey Simon prepared to start in the Class G and H modified race. The Beast coughed and died on the line. The field had half a lap on Simon before he could restart. But he caught all but five cars out of the twenty starters before the final flag fell.

The following day in the 25 lap semi-main event for modified cars under 2000 cc, the beast came off the line with a snarl of defiance. Snorting at the heels of Lotuses and Porsches, it was giving Harvey a real fun ride and working its way to the front of its Class when the hood suddenly flew off, narrowly missing Harve's head. The Beast was promptly black-flagged. Temporary repairs were made, but the Beast again rebelled and flipped its hood when Gail Liebaert tried to give it another chance in the ladies' race.

While awaiting a week-end of racing at Hour Glass Field in San Diego, the Beast was fitted with competition hood straps and tested at a drag strip at San Fernando. It copped first place in class, turning a modest 65.5 mph from a standing start on the quarter mile strip.

San Diego, once the scene of several Beast triumphs, proved disastrous for the veteran. Chasing Bob Drake's F2 Cooper in practice, the Beast was shoved into a corner too fast. It nuzzled a Porsche Spyder hard enough to fold the firewall around the writer-driver's foot, tear loose the motor mounts and give up with a gasp in the infield.

Frenzied repairs put it back in action. But the Beast was showing her age. Starting with an exhilarating sprint in the ladies' race, it rushed through the small car field, gobbling up Sprites and MGs in a dashing manner as Gail Liebaert put her foot in

both carbs, obviously enjoying herself.

Then, mysteriously, the Beast began to slow down. It lapped slower and slower while Gail caused consternation and bewilderment in her pit by ignoring frantically signalled appeals for information. Then the Beast vanished on a far turn. The other cars crossed the line. Gail did not walk home.

Sitting low in the seat, wearing a face shield and sniffing the oily perfume of the Beast in temperatures over 105 degrees had proved too much for Gail. She passed out from heat prostration and carbon monoxide poisoning and was hospitalized overnight.

But there was still a race left in the Beast. Simon started in the 25-lap semi-main. He was holding down sixth place when he rolled by the pits holding up three fingers. The Beast was jammed in third gear and wouldn't budge. The torn motor mounts had jiggled loose, throwing the drive train out of line. The Beast was waved in for an inglorious, but temporary retirement.

Compared to the growing field of sleek new H cars, the Beast was a sick chick. But she still had too much oomph packed in her engine and running gear to be retired.

A month later she popped out of Don Miller's Inglewood shop bearing new motor mounts and a beautifully finished aluminum skin which made it faintly resemble a dehydrated D-Jag. It was just in time to

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compete again at Santa Barbara.

But it takes more than pretty paint and a lovingly fashioned body to win these days. Now a beauty, but still the Beast at heart, the old Crosley came off the line in the 25-lap semi-main for under 2,000 cc cars, snarling like a sore-tailed tiger.

For five furious laps it snapped at the heels of bigger, more expensive cars. It was turning the course in a shade under Porsche times. Then, to Harve Simon's consternation, the Beast froze solid. In the middle of a turn it locked up all four wheels, jumped three feet in the air and sat down hard.

A valve had snapped, jammed a piston and punctured the water jacket. Simon perched on the crippled Beast and watched cars that had tailed him in practice and the early laps stagger home to claim honors.

But the Beast is far from dead. Having, in its years of racing, gone through five paint jobs, one frame, three bodies, one set of brakes, and a smattering of incidental parts, it's finally getting the "new" second-hand cylinder block it deserved long ago.

It will race for many years to come—perhaps winning new honors, but definitely continuing as a race car which has probably provided more fun, more racing, and less expense than any other hybrid on the West Coast . . . maybe even in the whole country.

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—DHM

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# TECHNOTES

## CORVAIRS—HOT AND COLD

What are the technical differences be-  
tween the 80 and 98 bhp Corvair engines?  
I'm especially interested in compression  
ratios, cams, valve springs, carbs and ex-  
haust system.

Leo E. Osburn  
Little Genesee, New York

The compression ratios are the same at  
8 to one and the carbs use the same ven-  
turi size, 1.25 inches, but different jetting.  
Part numbers for the various carbs are  
7019100, -101, and -107 for P'glide, synchro  
and hot cam respectively. With a 1½-to-one  
rocker arm ratio, the valve lift is increased  
from .314 intake and .344 exhaust to .380  
for both. Valve timing is as follows for the  
98 hp Corvair.

	Intake	Exhaust
Opens	54° BTDC	90° BBDC
Closes	118° ABDC	82° ATDC
Duration	352°	352°
Overlap	136°	
Lift	.380 in	.380 in

For the 80 hp Corvair, the valve timing  
is milder than that, but wilder than when  
the car was first introduced. Figures are:

	Intake	Exhaust
Opens	43° BTDC	87° BBDC
Closes	93° ABDC	69° ATDC
Duration	316°	336°
Overlap	112°	
Lift	.314 in	.344 in

Valve springs are no stiffer but they are  
longer, under 21% greater pre-load (valve  
closed) and exert 13% more force when the  
valves are open. Factory specs give the  
following mean figures with three to five  
pounds tolerance allowed for force at the  
given lengths:

80 hp	
Valve closed	61 lbs @ 1.508 in
Valve open	145 lbs @ 1.148 in
98 hp	
Valve open	74 lbs @ 1.696 in
Valve closed	164 lbs @ 1.306 in

The exhaust pipe and tail pipe are in-  
creased in diameter to two inches from  
the stock figures of 1½ and 1½ respec-  
tively.

## ENGINE SWAP

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"slant-six" engine in my NSU. Don't you  
think a Prinz-Valiant would be a good idea?

Len Prokine  
Maquoketa, Iowa

Sounds comical.

## WHERE WE CAME IN

After reading your article on the Roarin'  
Renault, I have decided to fix up my 1954  
Volkswagen with a V8 engine. I would like  
to know how to put the larger engine in  
my car.

Bernard A. Eastep  
Milford, Michigan

Somehow this seems like where we came  
in, but you might find the story "Violent  
VW" in the January 1958 SCI of interest.

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## RED HOT ALFA

Continued from  
page 28

limits of our experience.

With that high first gear we expected some trouble in getting away from rest, but the cushion-center twin-plate clutch handled starts and shifts more smoothly than we expected. The gearbox, with its stubby lever protruding through the vast center tunnel, felt solid as a bank vault and probably is just about that strong. Its helically-cut gears are selected by extremely rugged dog clutches: just two face dogs on the sliding clutch to engage four possible grooves in the gear. Nothing could be farther from synchromesh, but gear changes were easy and very, very fast. Since the differential is frame-mounted the drive line has a direct, "right-now" feel, emphasizing a small amount of free play that causes clunking noises when shifts are made. So sturdy do the clutch and gearbox seem to be that it's no surprise that the *Discos* suffered two failures of the spiral-bevel final drive in competition. That must have been the weakest link.

These Alfas appeared at Le Mans the same year Jaguar won so dramatically with its first use of disc brakes at the French track, so the writing was on the wall for drums after the Milan design staff had planned this machine. The drum brakes it has, however, are very interesting and probably more advanced than any others at that time. All four drums are bimetallic, with deep, helical finning. Mounted in-board, as mentioned, the rear brakes have conventional leading-trailing mechanisms with floating pivots—nothing very unusual. But in front the drum has been made very wide, the effective shoe width being about three inches. We say "effective" because Alfa engineers selected to use two shoes side-by-side, each about an inch and a half wide, giving a total of four shoes per wheel—all leading. This, of course, was done to improve the conformity between the shoes and the drum, often difficult to achieve with extremely wide shoes. We had no occasion to use the brakes really hard, but did notice that the pedal was firm in the racing manner and that there was a tendency to "pull" slightly to one side when the linings were cold.

Highly advanced for 1953, *Disco's* suspension is still excellent today. At the back it's de Dion, with the axle tube passing behind the heavily-finned final drive. Prime location for the tube comes from two radius rods which converge from the hubs forward to a central point, forming a triangle whose apex is pivoted to the frame by a two-way trunnion. A similar locating triangle was used on the prewar Grosser Mercedes and on the Pegaso, though in the latter case the triangle extended rearward rather than forward. Lateral location of the center of the de Dion tube is still needed, and in the Alfa it's supplied by a Watt linkage—one of the first uses of this now-popular device on a car suspension. Deep coil springs and tubular shocks are used, and the back

wheels are given a slight negative camber.

All these refinements, plus a tail-heavy weight distribution, result in exceptional traction in all directions at the back. Especially with the high gearing, it's almost impossible to spin the rear wheels, and there's ample cornering "bite". At the front there are unequal-length wishbones, conventional in layout but lovingly manufactured, and coil springs and an anti-roll bar (a short anti-roll bar is also fitted at the back). Steering is by a conventional box with three-piece track rod linkage placed ahead of the front wheels, calling for 2½ turns from lock to lock for a turning circle of 44½ feet. There's a springy, progressive feel to the steering—a feel of precision and an exact indication of what's happening at the front wheels.

Naturally we didn't take too many liberties with this exotic automobile (it was valued at \$40,000, probably not unreasonable in view of its origin and uniqueness) but we did get a good impression of its handling. One of the hardest tasks of the racing car designer is to combine a deep-kneed, flexible suspension (for comfort and adherence to rough road surfaces) with micrometric precision of wheel location (for accurate, consistent directional control). This has been done extremely well in the *Disco*. It's a surprisingly smooth-riding car, obviously well suited to the most rugged kind of over-the-road racing, but it manages to keep the high-level predictability of a pure racing car. Its competition heritage couldn't be revealed any more clearly.

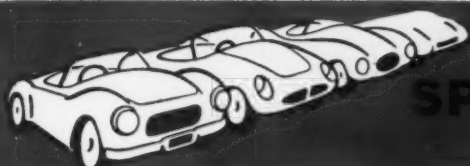
The real reason for this car's existence is, of course, the body. From every aspect, Pininfarina's workmanship and development of line is flawless. It's an extremely striking car. As we've come to expect from Italian cars, the cockpit was very cramped for our six-foot types, but bearable. The broad tunnel forces you to sit well over to the side of the car; the overall width would easily be adequate for three abreast. Removable "side curtains" are fitted, an arresting anachronism, and the sliding roof feature—the main novelty of this body—proved disappointing. Its two sections didn't slide too reliably on their nylon rollers and tracks, and they were difficult to latch firmly against the top of the windshield.

It's rumored that Alfa Romeo has some larger powerplants and more sporty models in the offing; they may even be announced by the time this appears. We sincerely hope they'll incorporate some of the technical excellence and sheer virile excitement of this unforgettable *Disco Volante*. —KEL

(Answers to The Numbers Game page 60)

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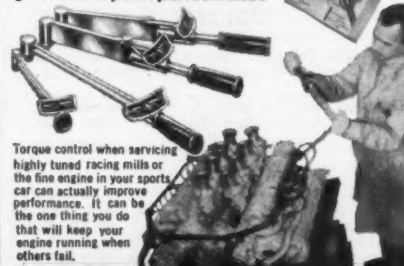
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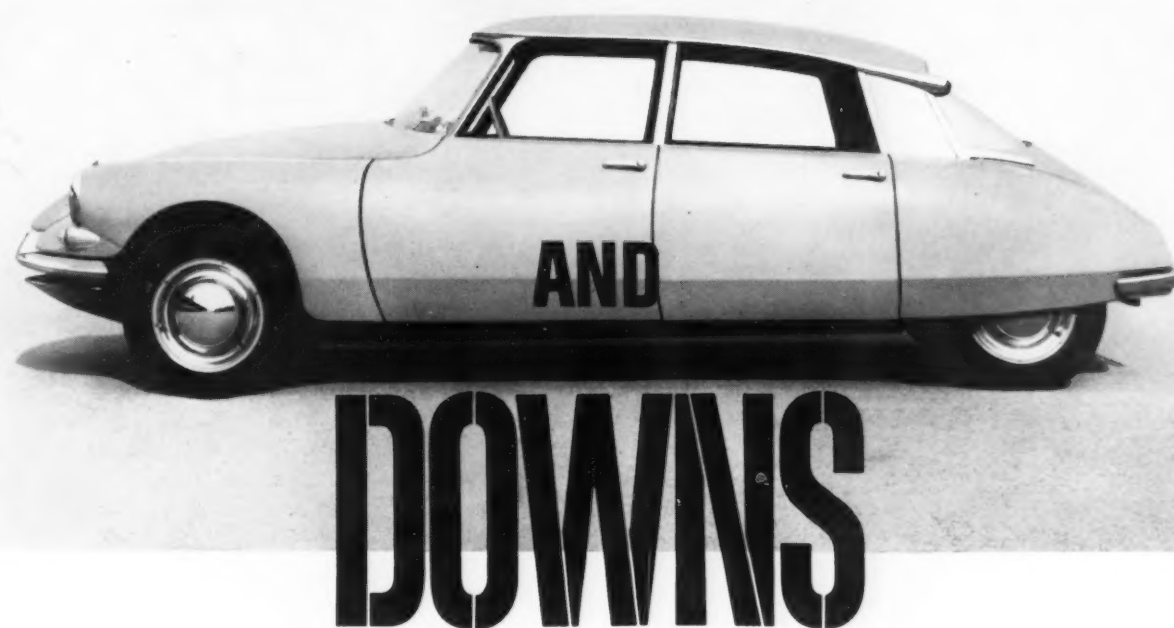
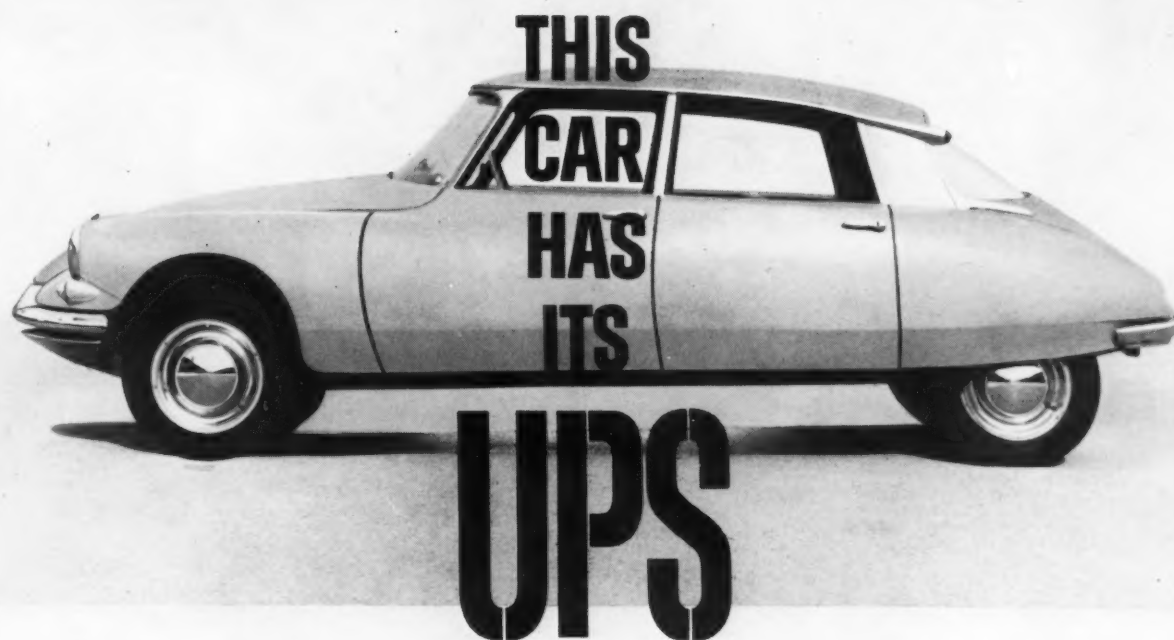
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